

Document Path: F:\FELIX_DATA\4\SIGHT\AA3135_Hingaia_WAR\MAPS\MAP_06_Fish.mxd



HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

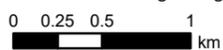
Eng. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

Stream Mouth

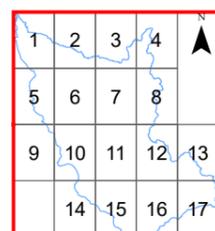
Vegetation Development

- Grasses
- Mature
- Regenerating
- Low growing
- Planted
- Scrub



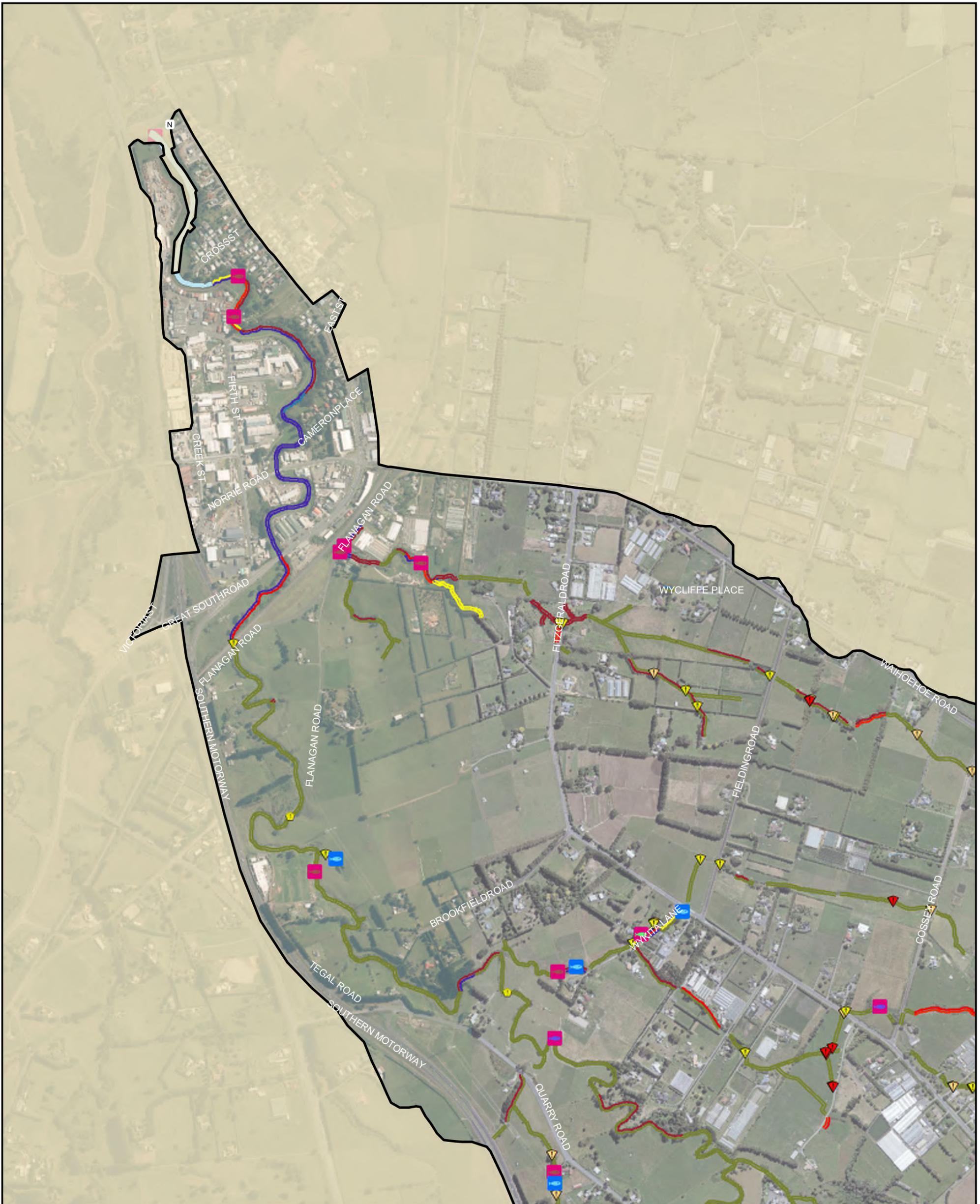
Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage

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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

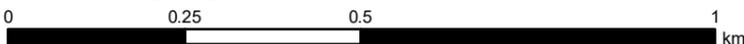
Eng. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

Stream Mouth

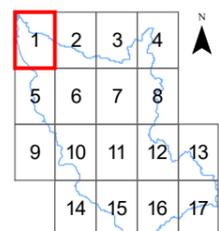
Vegetation Development

- Grasses
- Low growing
- Mature
- Regenerating
- Scrub
- Planted



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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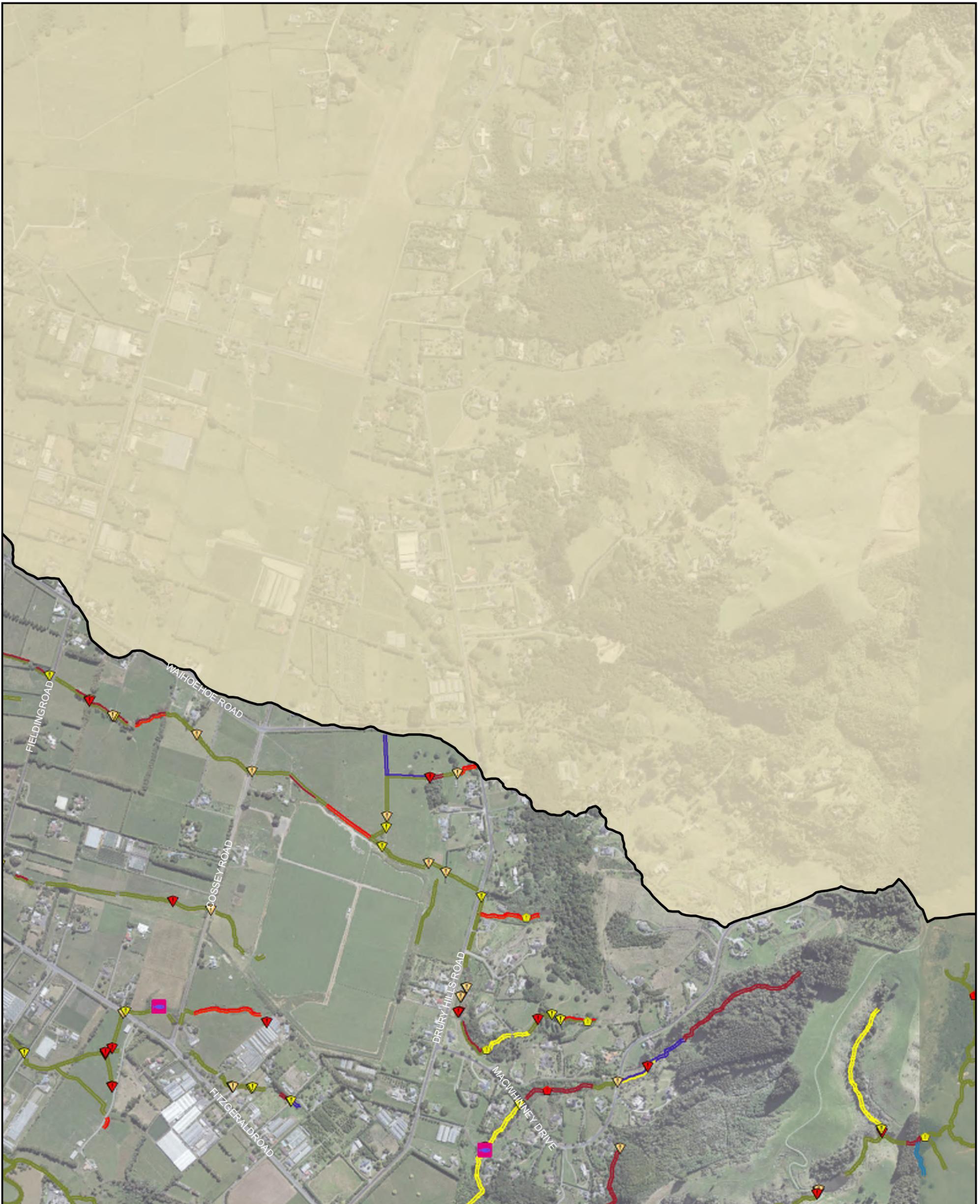
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Checked: AS

Approved: KB



Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY



Nat. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

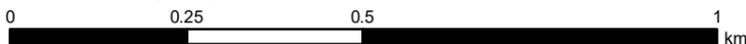
Eng. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

Stream Mouth

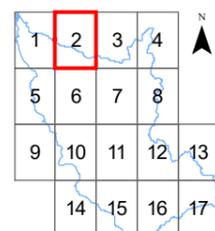
Vegetation Development

- Grasses
- Low growing
- Mature
- Planted
- Regenerating
- Scrub



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

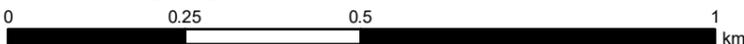
Eng. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

Stream Mouth

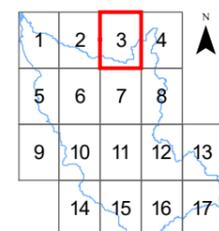
Vegetation Development

- Grasses
- Mature
- Regenerating
- Low growing
- Planted
- Scrub



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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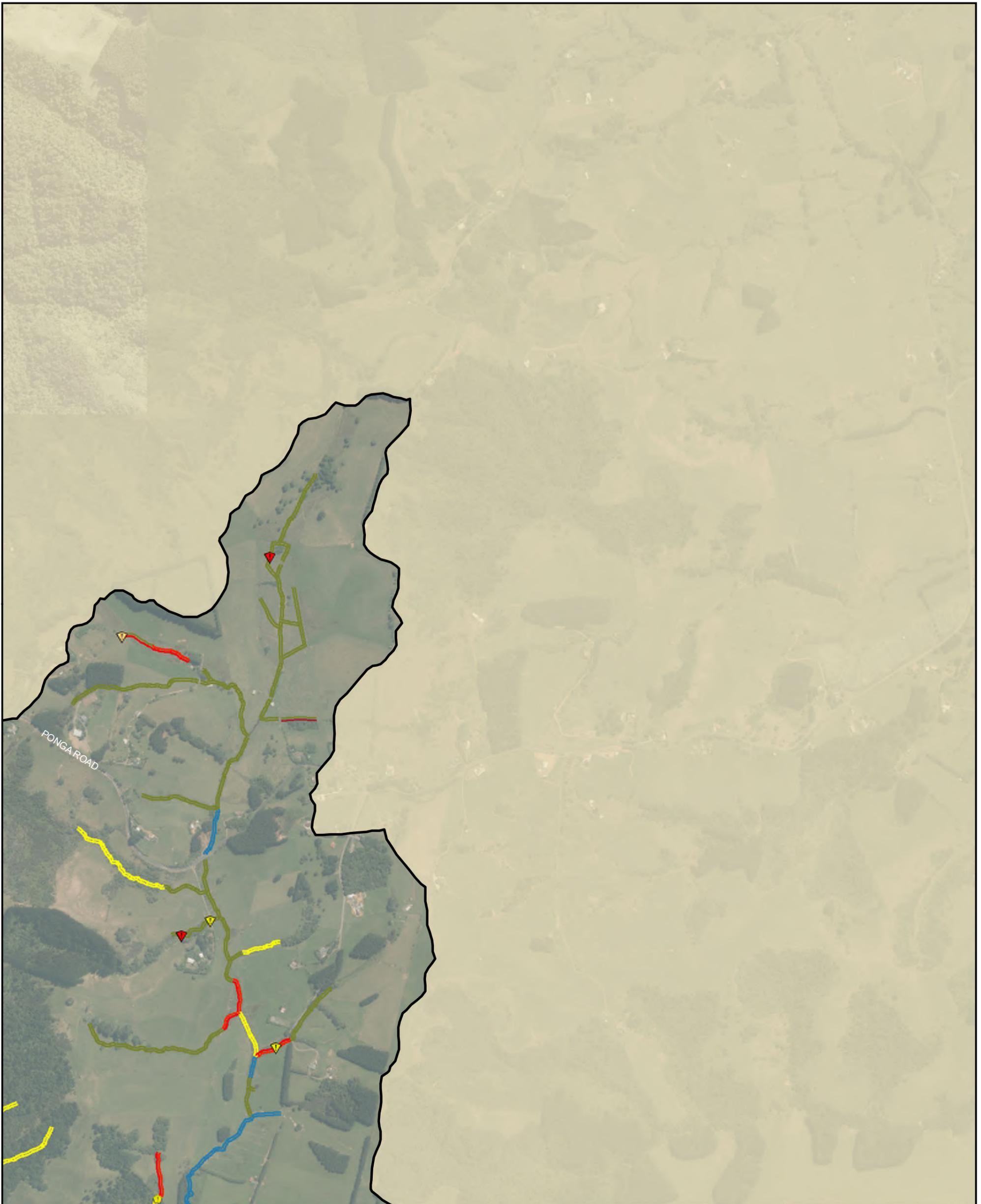
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Author: FP

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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

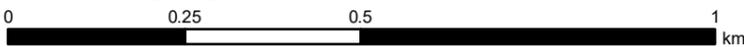
Eng. Barrier to:

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- Climbers
- Swimmers

Stream Mouth

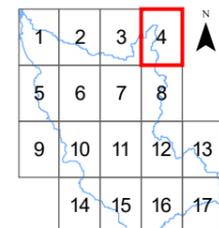
Vegetation Development

- Grasses
- Regenerating
- Low growing
- Planted
- Mature
- Scrub

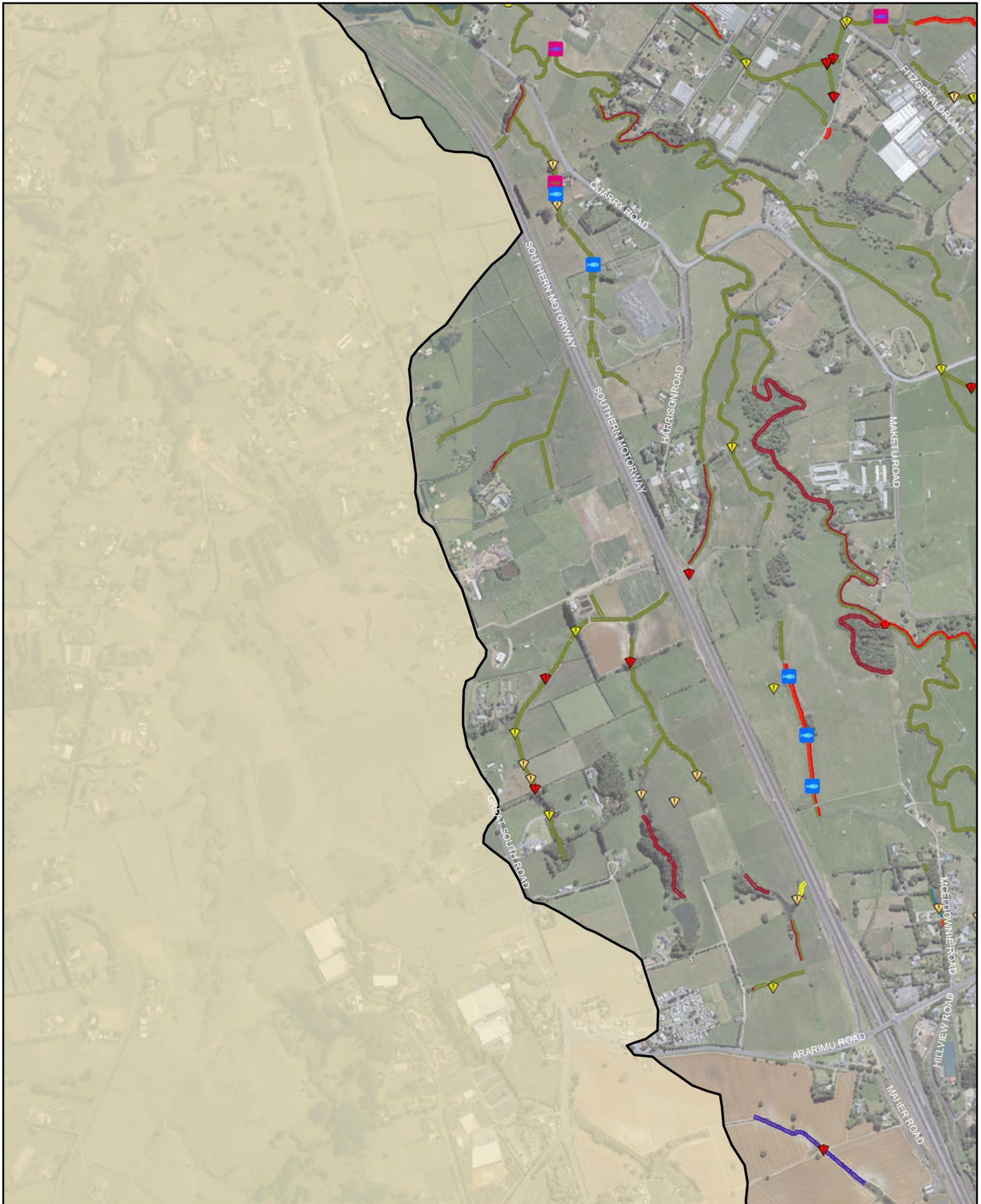


Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

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- Climbers
- Swimmers

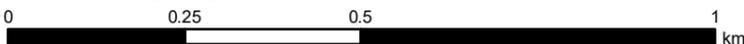
Eng. Barrier to:

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- Climbers
- Swimmers

Stream Mouth

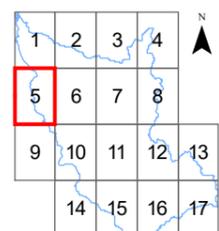
Vegetation Development

- Grasses
- Mature
- Regenerating
- Low growing
- Planted
- Scrub



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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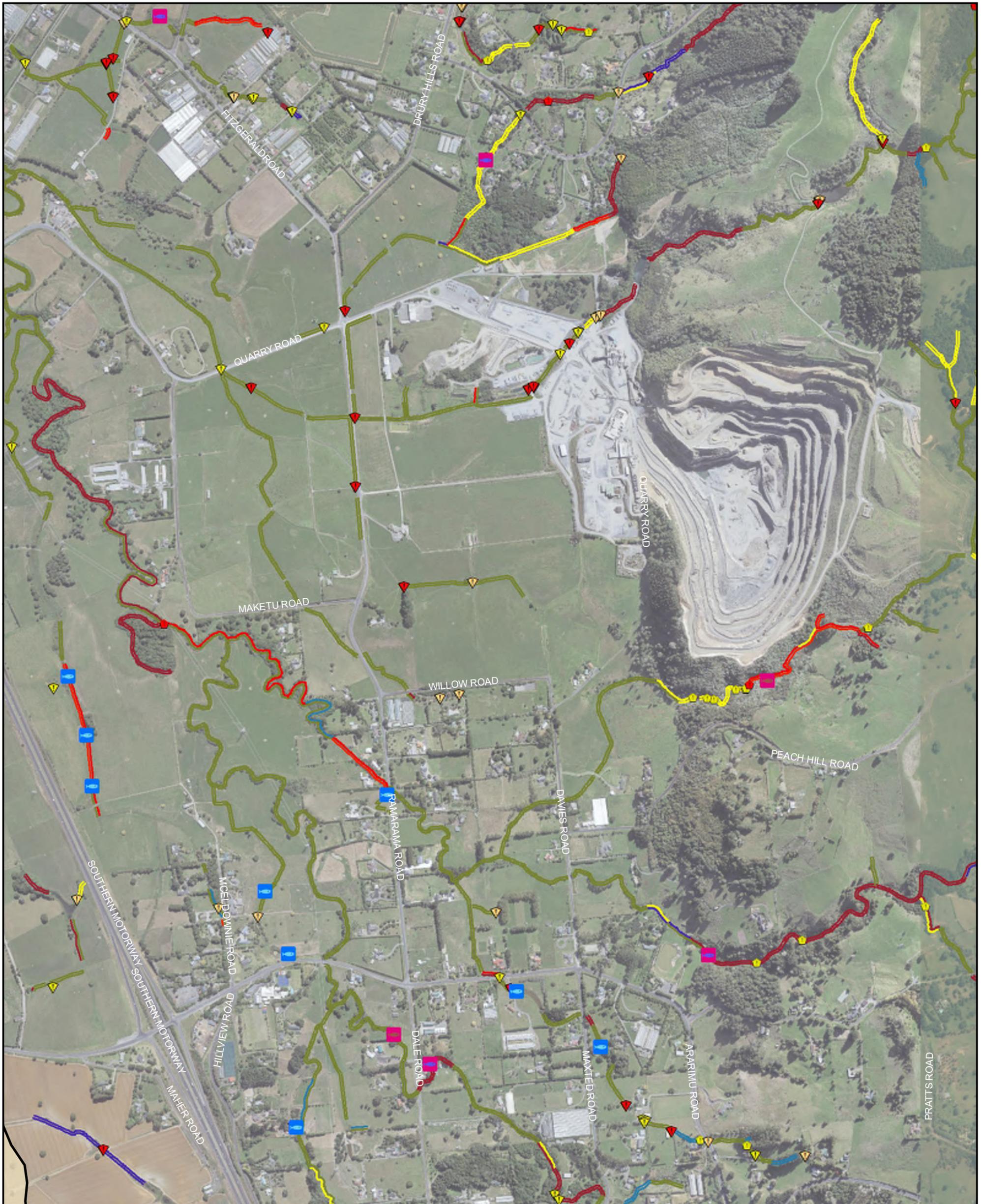
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Approved: KB



Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage

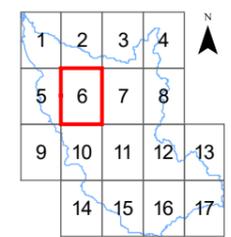


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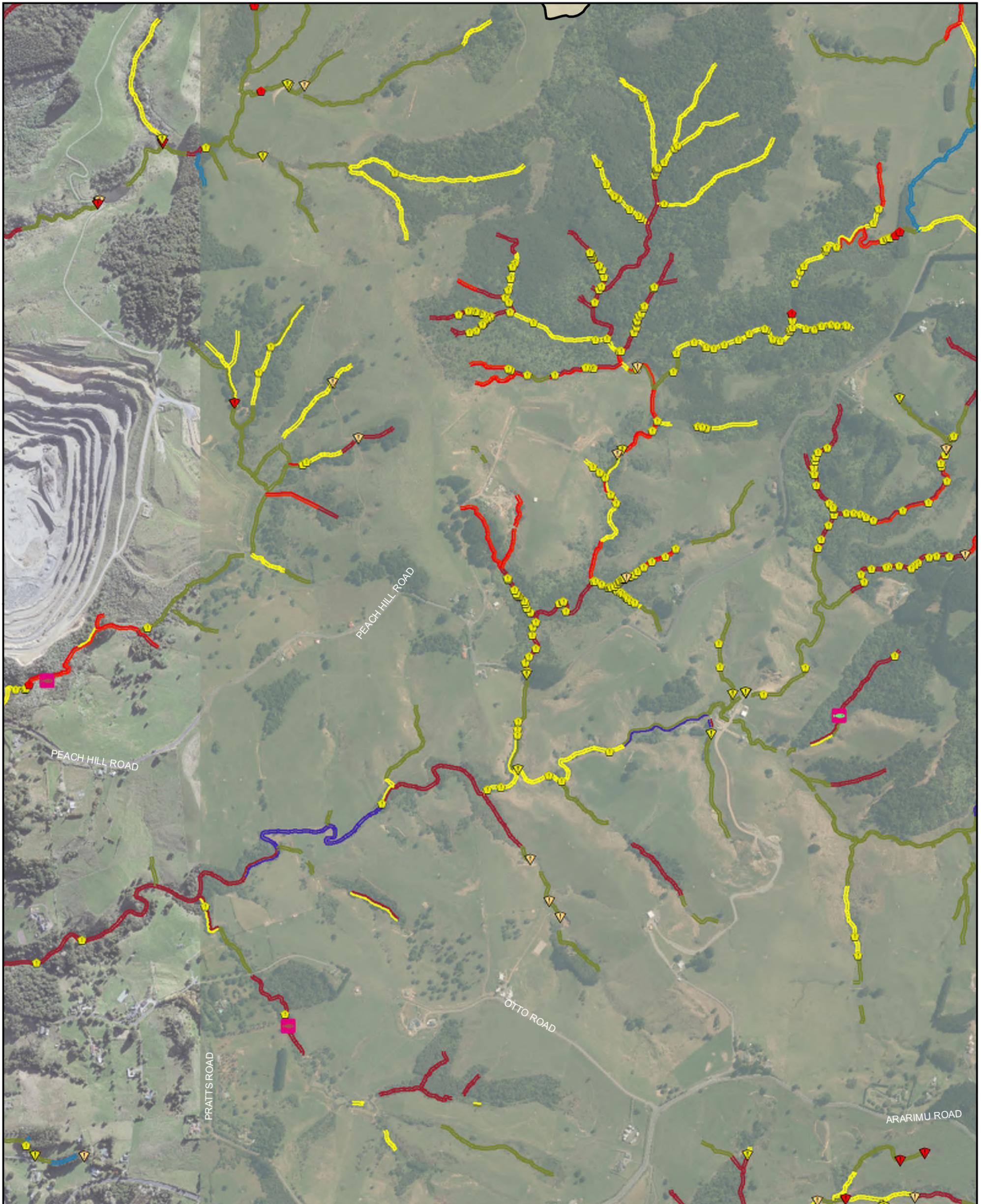
HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:		Eng. Barrier to:		Stream Mouth	Fish Survey	
	Anguilliforms		Anguilliforms		Anguilliform (A)	
	Climbers		Climbers		Climber (C)	
	Swimmers		Swimmers		Swimmer (S)	
	Grasses		Mature		Exotic (E)	
	Low growing		Planted		Regenerating	
			Scrub			



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Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- ▲ Anguilliforms
- ▲ Climbers
- ▲ Swimmers

Eng. Barrier to:

- ▼ Anguilliforms
- ▼ Climbers
- ▼ Swimmers

Vegetation Development

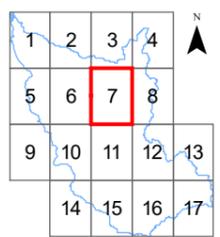
- Grasses
- Low growing
- Mature
- Planted
- Regenerating
- Scrub

Stream Mouth

0 0.25 0.5 1 km

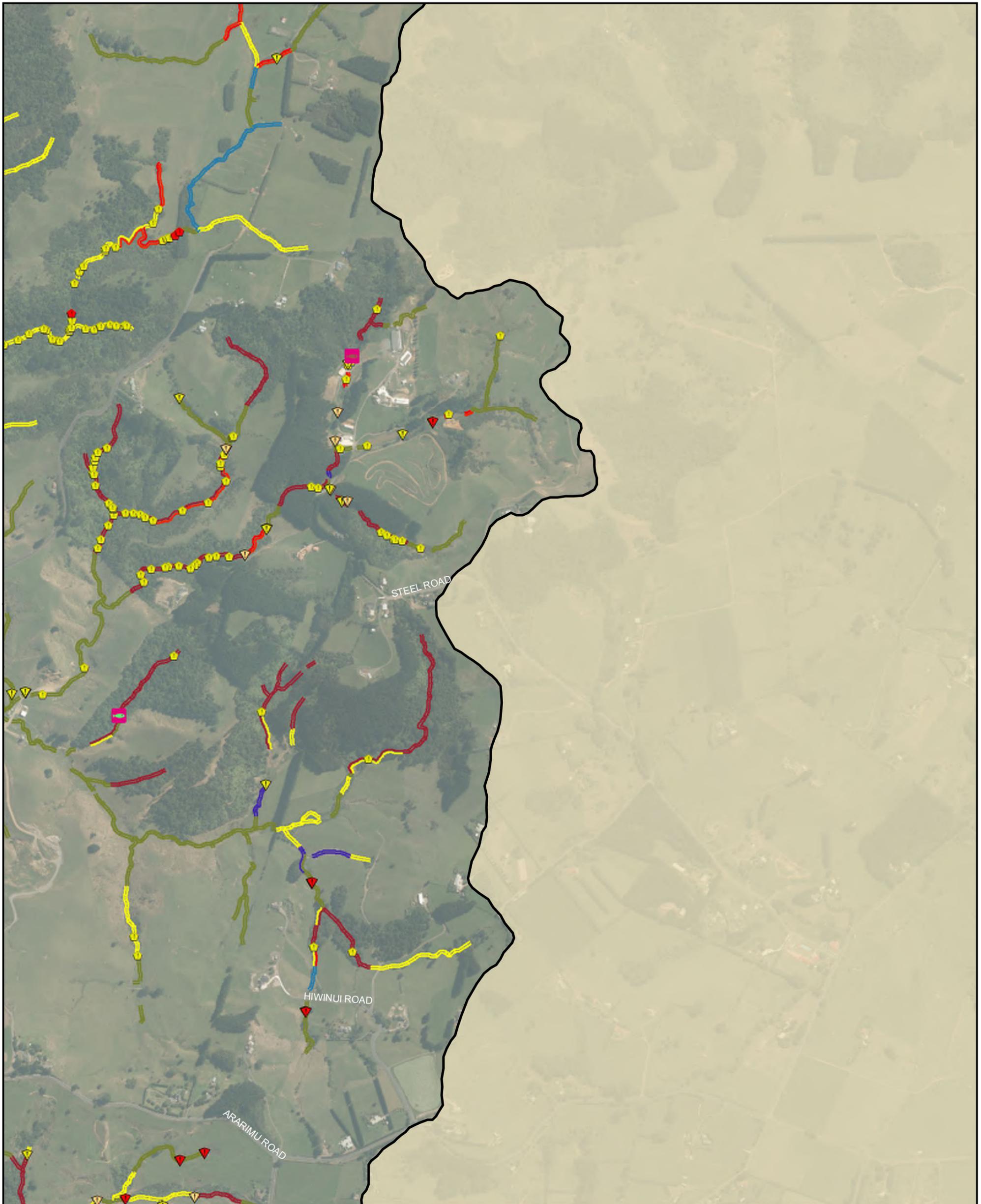
Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY



Nat. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

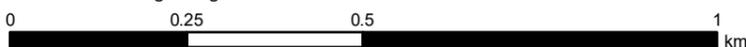
Eng. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

Stream Mouth

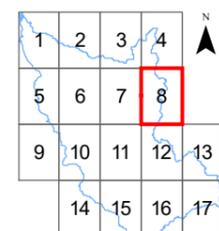
Vegetation Development

- Grasses
- Mature
- Regenerating
- Low growing
- Planted
- Scrub



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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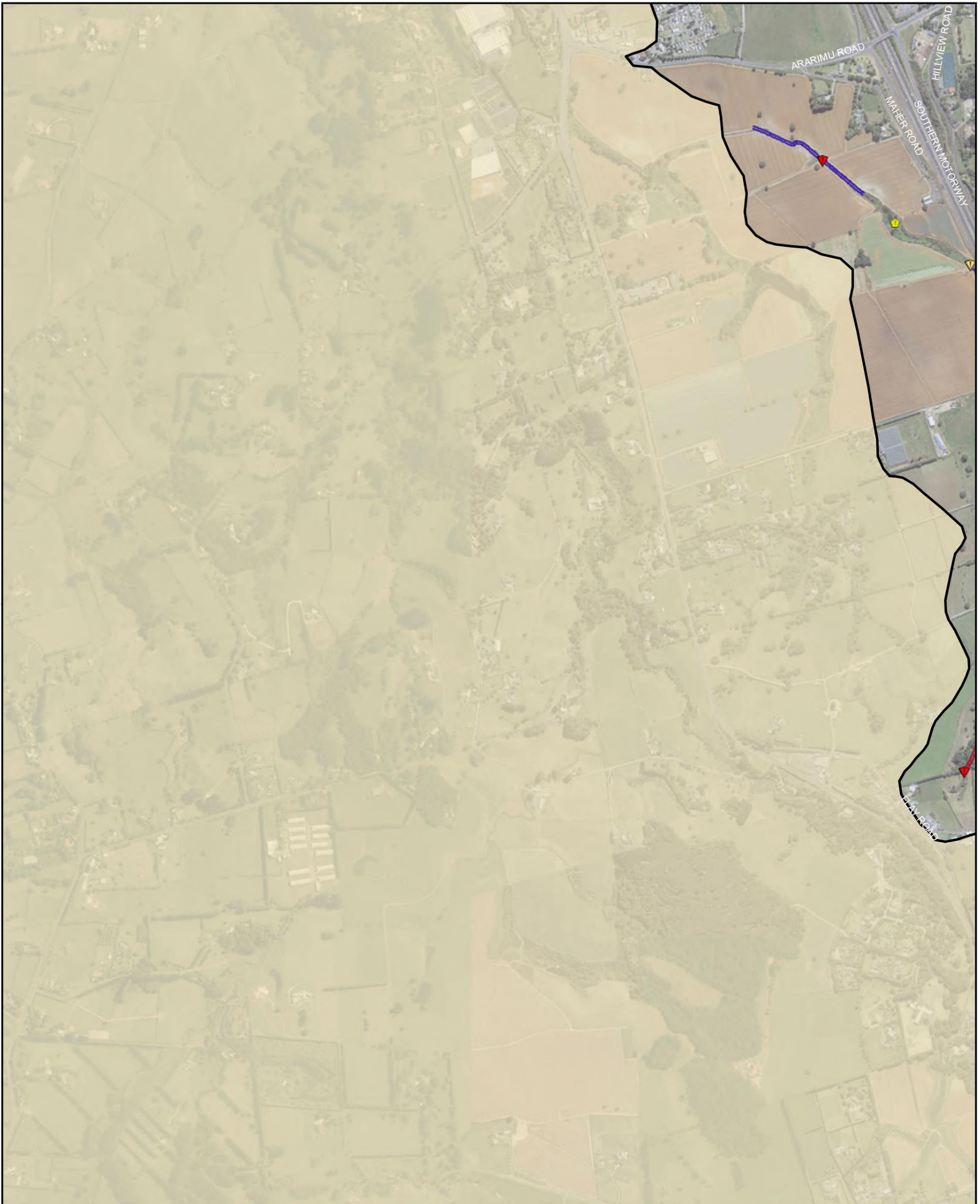
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Approved: KB

Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

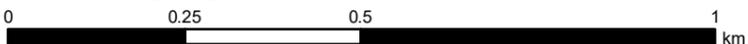
Eng. Barrier to:

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- Climbers
- Swimmers

Stream Mouth

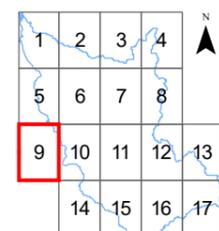
Vegetation Development

- Grasses
- Mature
- Regenerating
- Low growing
- Planted
- Scrub



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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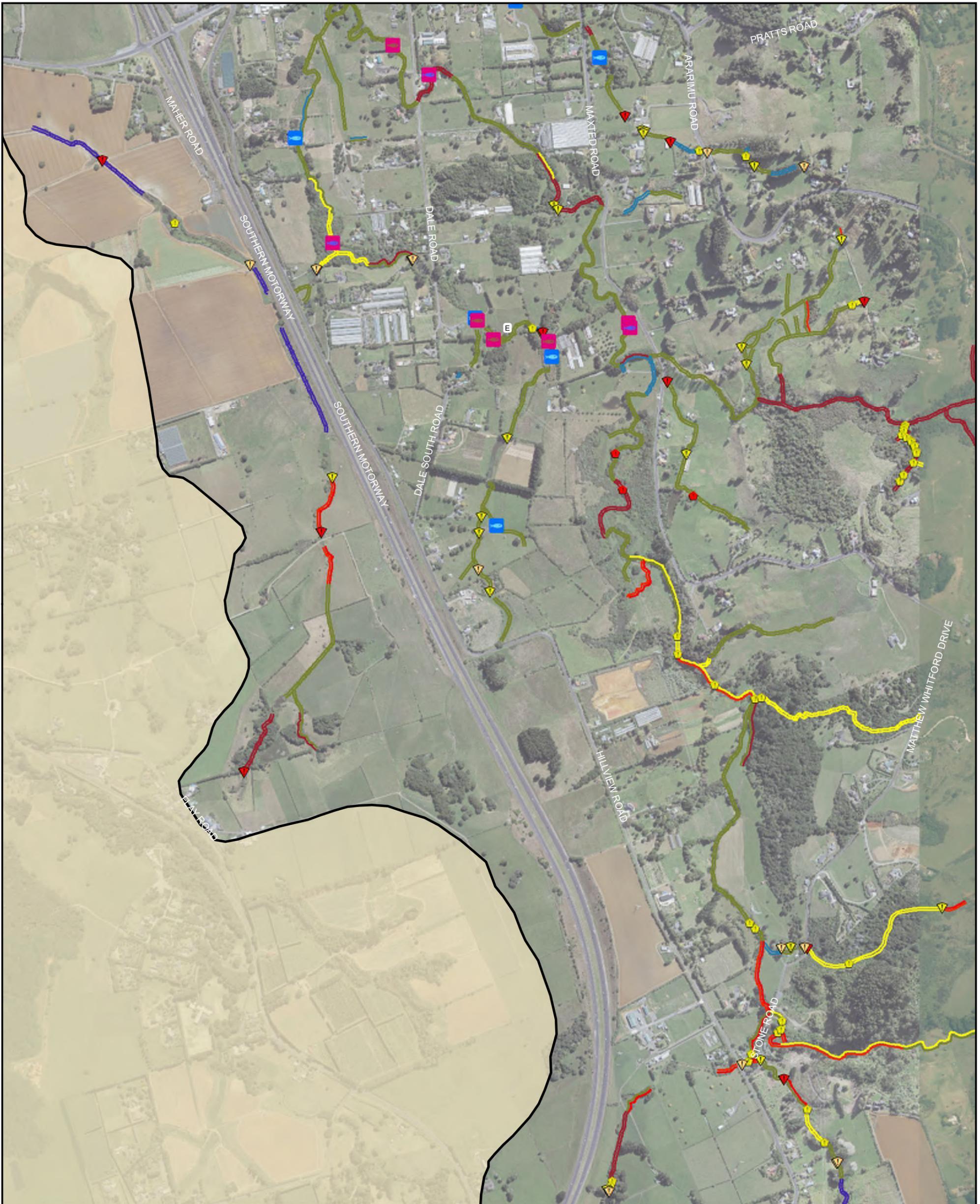
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Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

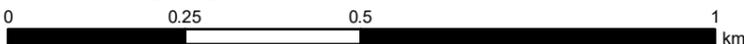
Eng. Barrier to:

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- Climbers
- Swimmers

Stream Mouth

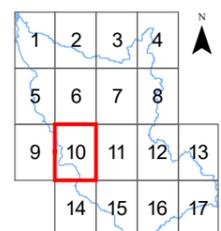
Vegetation Development

- Grasses
- Regenerating
- Mature
- Planted
- Low growing
- Scrub



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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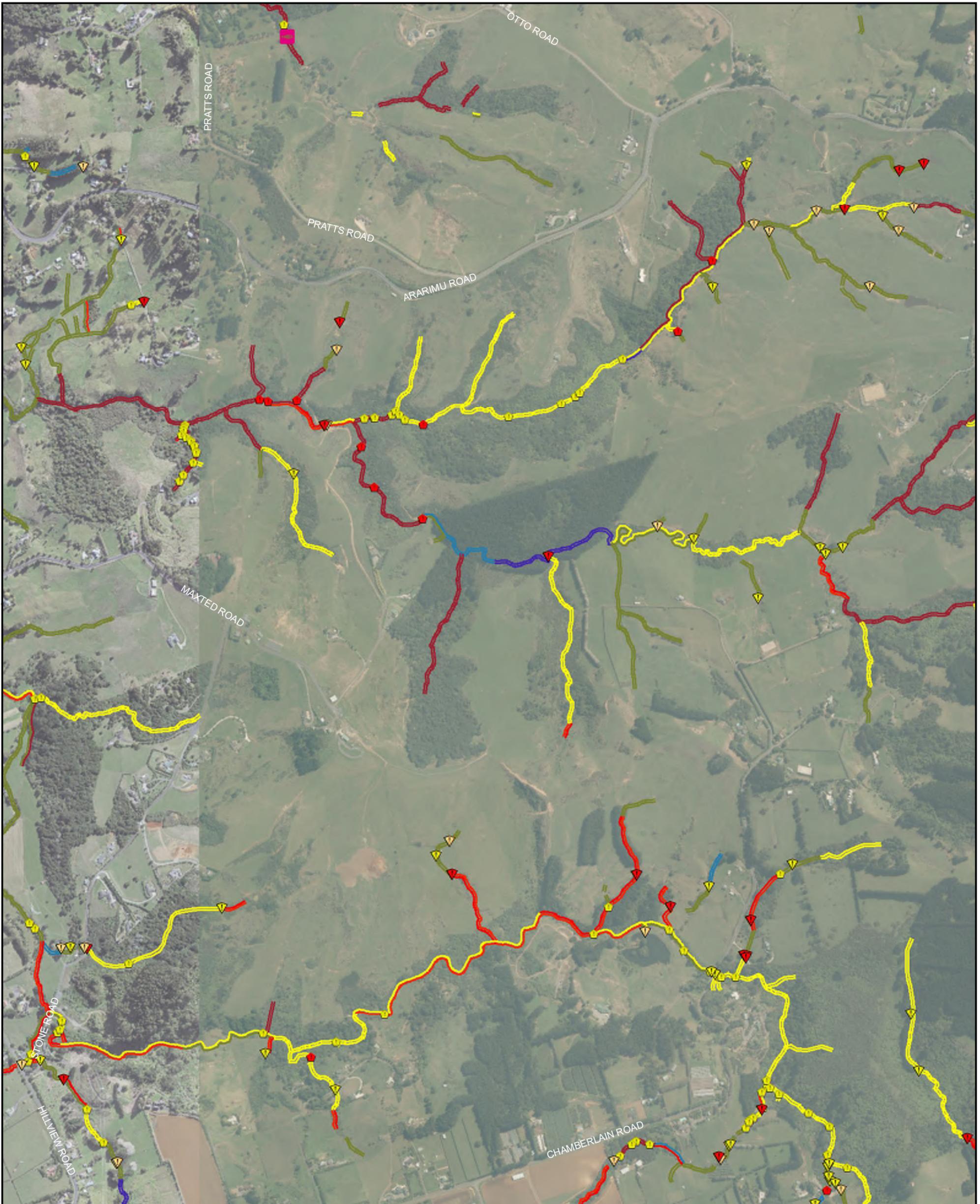
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Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- Anguilliforms
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- Swimmers

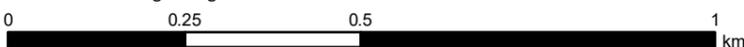
Eng. Barrier to:

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- Climbers
- Swimmers

Stream Mouth

Vegetation Development

- Grasses
- Mature
- Regenerating
- Low growing
- Planted
- Scrub



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)

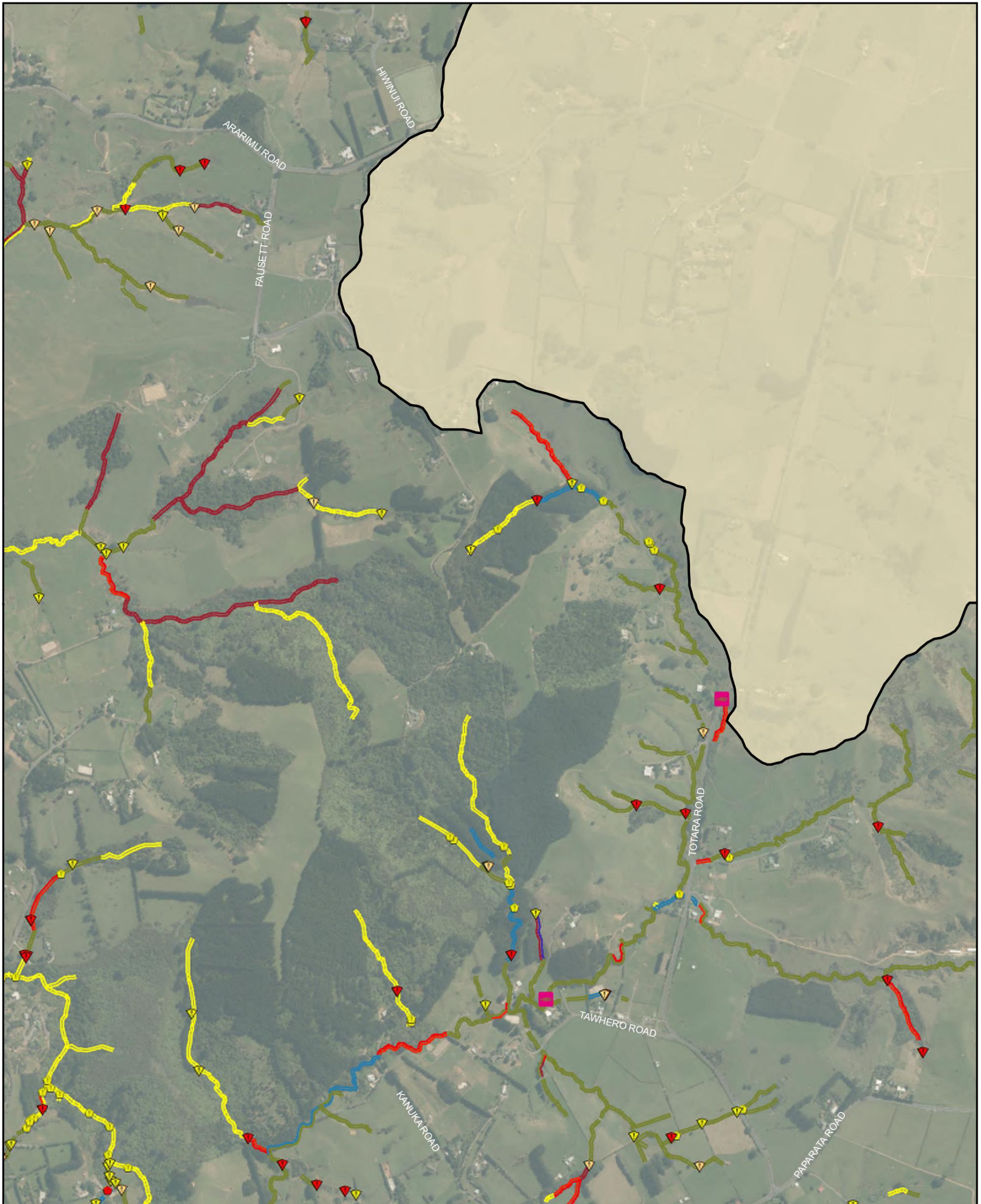
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9	10	11	12		13
14	15	16	17		

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Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY



Nat. Barrier to:

- ▲ Anguilliforms
- ▲ Climbers
- ▲ Swimmers

Eng. Barrier to:

- ▼ Anguilliforms
- ▼ Climbers
- ▼ Swimmers

Vegetation Development

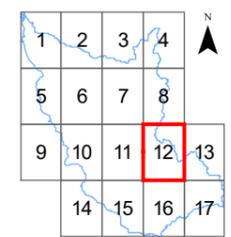
- Grasses
- Low growing
- Mature
- Planted
- Regenerating
- Scrub

■ Stream Mouth

0 0.25 0.5 1 km

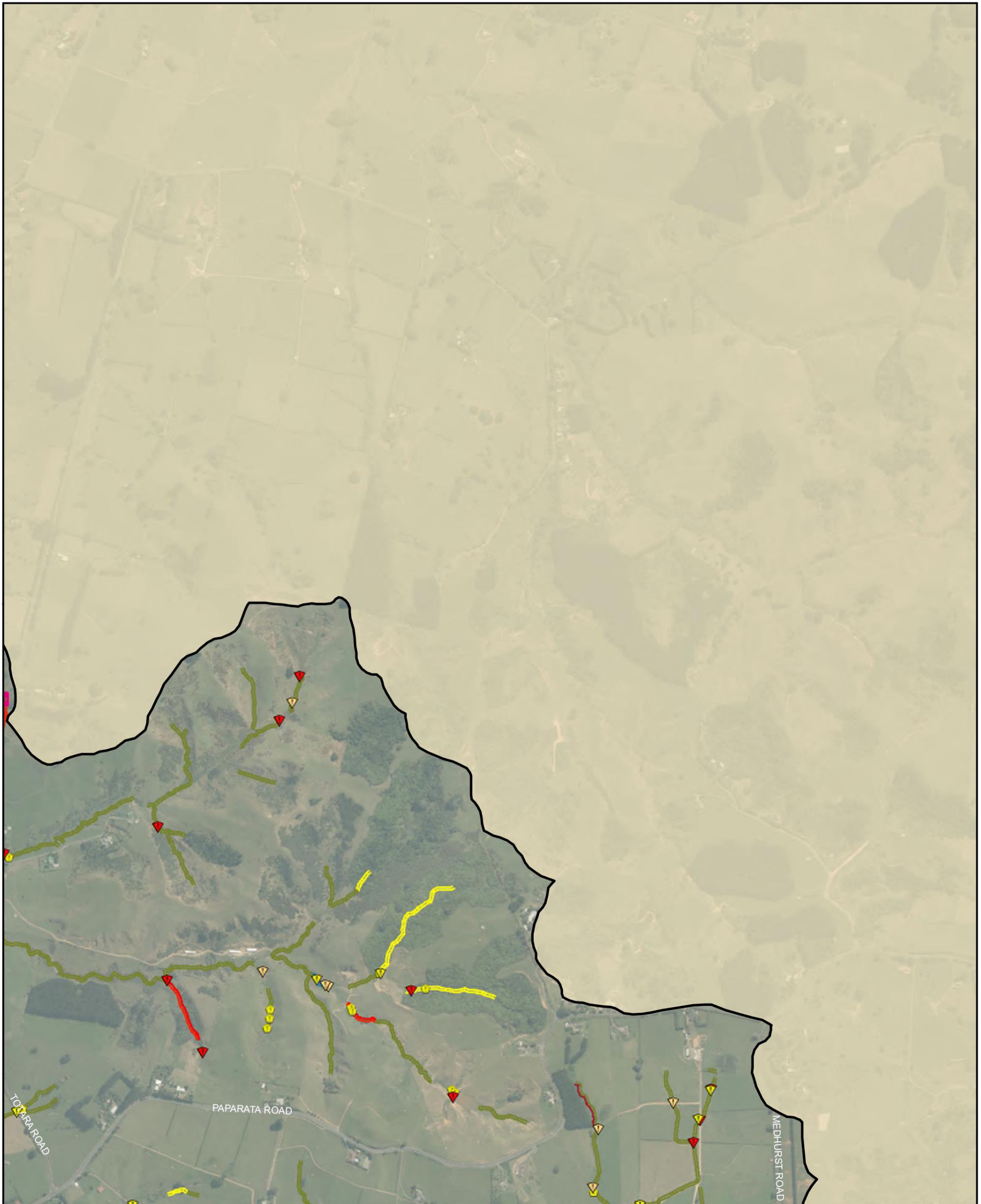
Fish Survey

- Anguilliform (A)
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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

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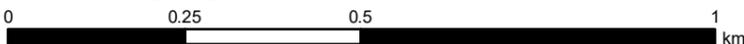
Eng. Barrier to:

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- Swimmers

Stream Mouth

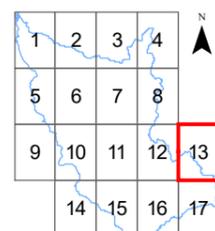
Vegetation Development

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Fish Survey

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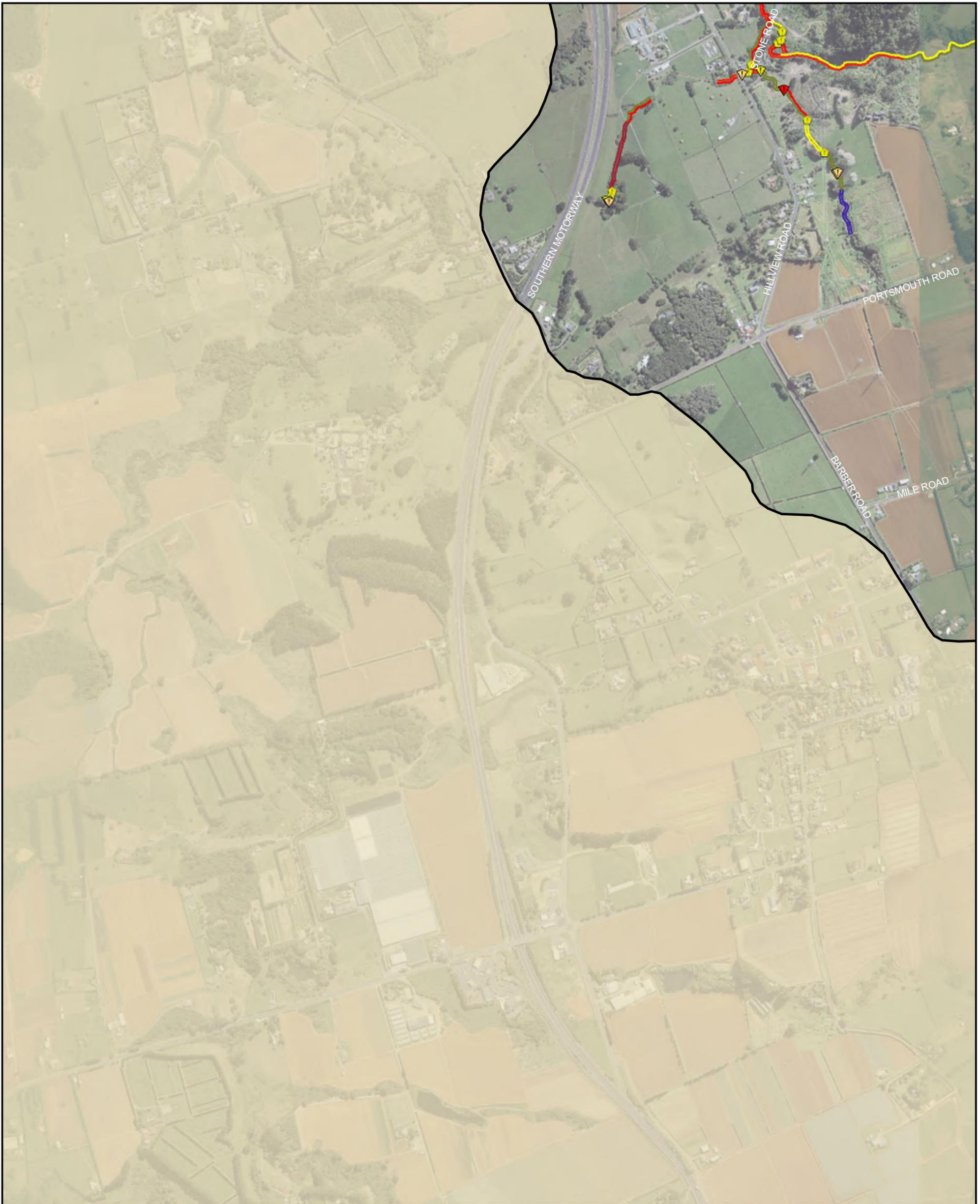


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Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY

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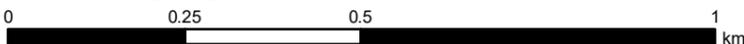
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Stream Mouth

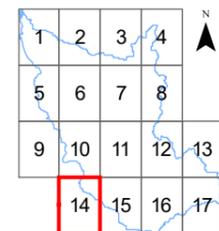
Vegetation Development

- Grasses
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- Regenerating
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Fish Survey

- Anguilliform (A)
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- Swimmer (S)
- Exotic (E)



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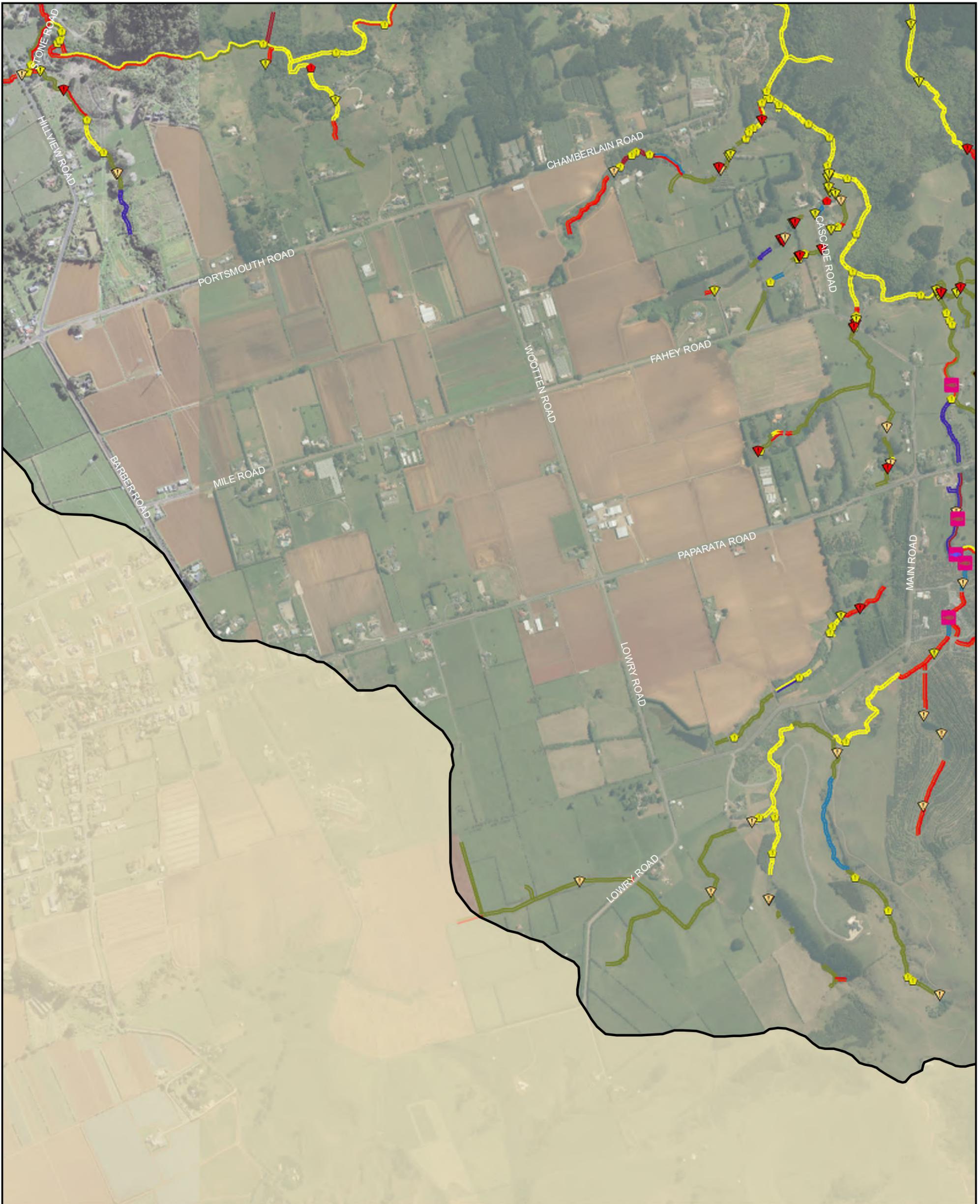
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Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY

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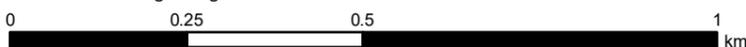
Eng. Barrier to:

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- Climbers
- Swimmers

Stream Mouth

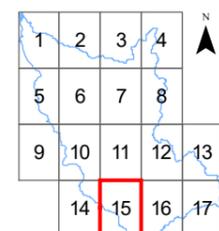
Vegetation Development

- Grasses
- Mature
- Regenerating
- Low growing
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Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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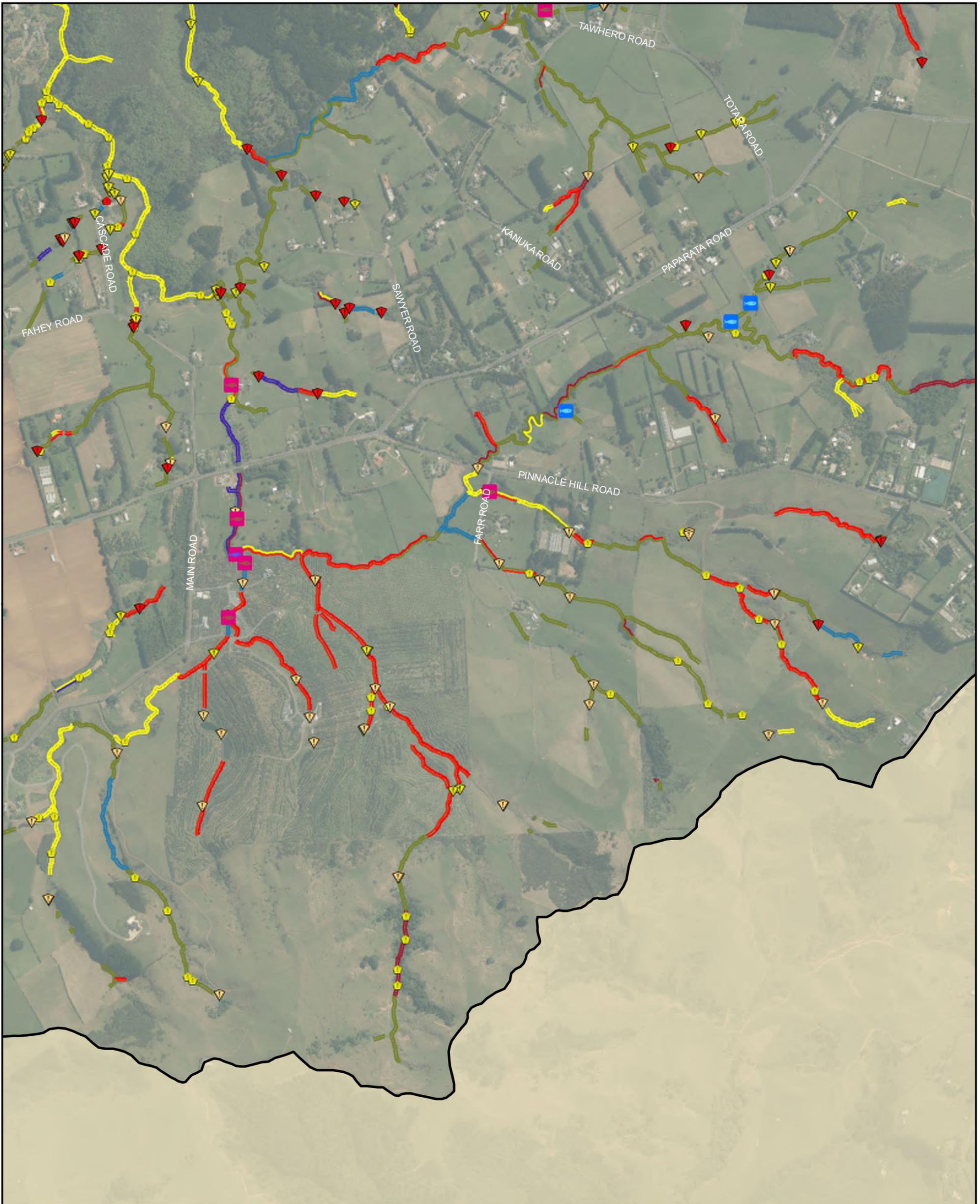
Status: Draft

Author: FP

Checked: AS

Approved: KB

Map 6: Inanga Spawning, Fish Locations and Potential Barriers to Fish Passage



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HINGAIA CATCHMENT STREAM SURVEY

Nat. Barrier to:

- ▲ Anguilliforms
- ▲ Climbers
- ▲ Swimmers

Eng. Barrier to:

- ▲ Anguilliforms
- ▲ Climbers
- ▲ Swimmers

Vegetation Development

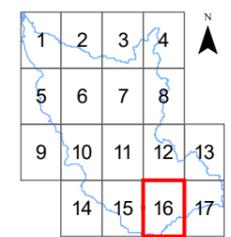
- Grasses
- Low growing
- Mature
- Planted
- Regenerating
- Scrub

■ Stream Mouth

0 0.25 0.5 1 km

Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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HINGAIA CATCHMENT STREAM SURVEY

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- Climbers
- Swimmers

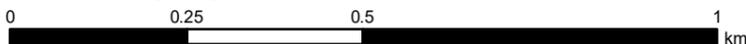
Eng. Barrier to:

- Anguilliforms
- Climbers
- Swimmers

Stream Mouth

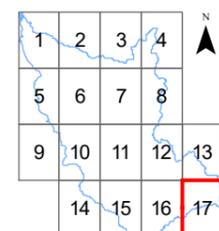
Vegetation Development

- Grasses
- Mature
- Regenerating
- Low growing
- Planted
- Scrub



Fish Survey

- Anguilliform (A)
- Climber (C)
- Swimmer (S)
- Exotic (E)



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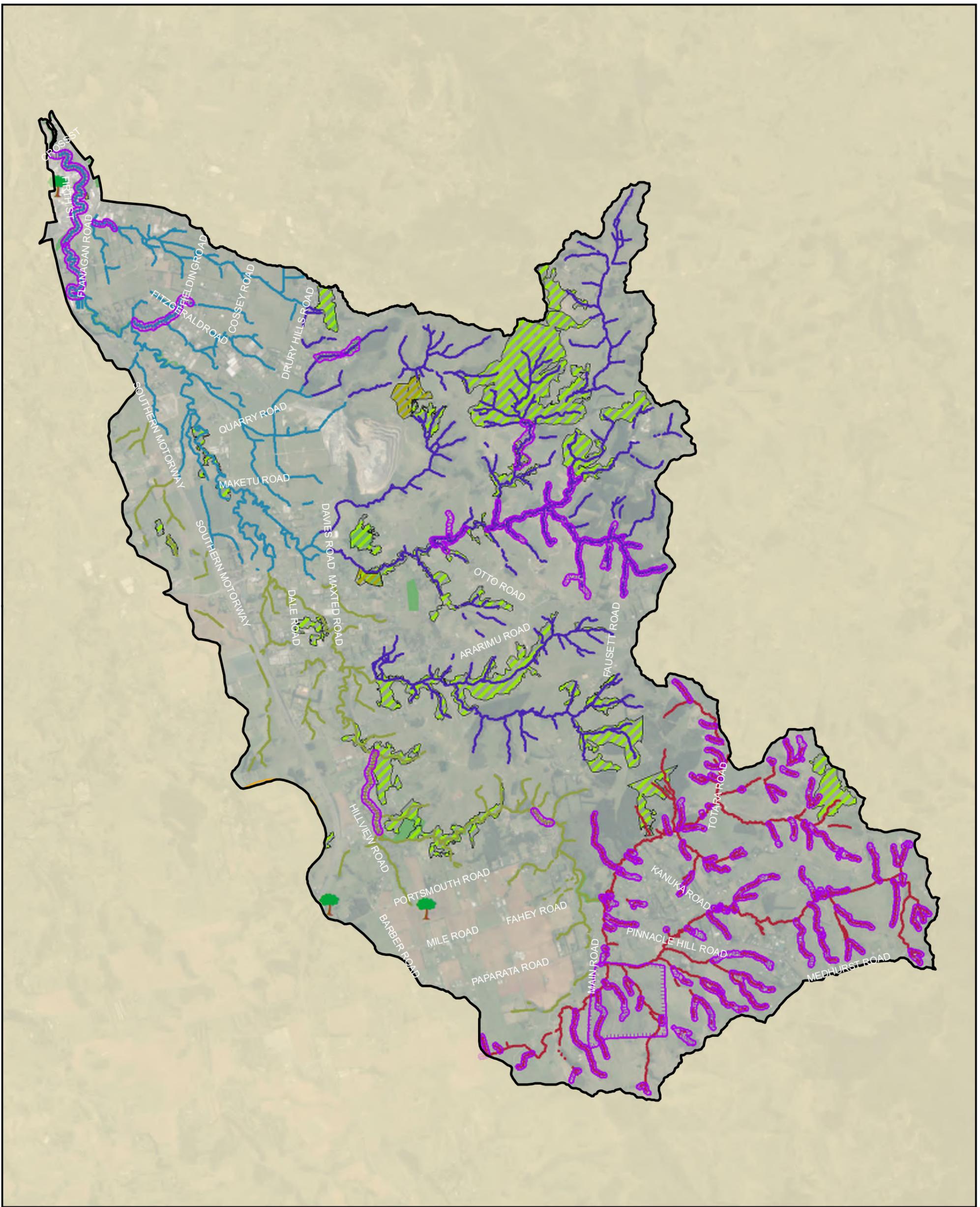
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Approved: KB

Map 7: Management Zones and Enhancement Opportunities

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HINGAIA CATCHMENT STREAM SURVEY

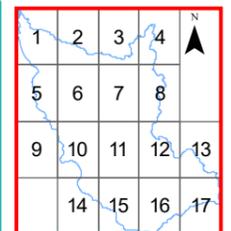
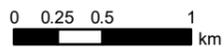
- Notable Trees
- Outstanding Natural Features
- Historic Heritage Extent Of Place
- Significant Ecological Areas
- Public Open Space
- Enhancement Opportunities

Management Zones

- MZ1
- MZ2
- MZ3
- MZ4

Miscellaneous

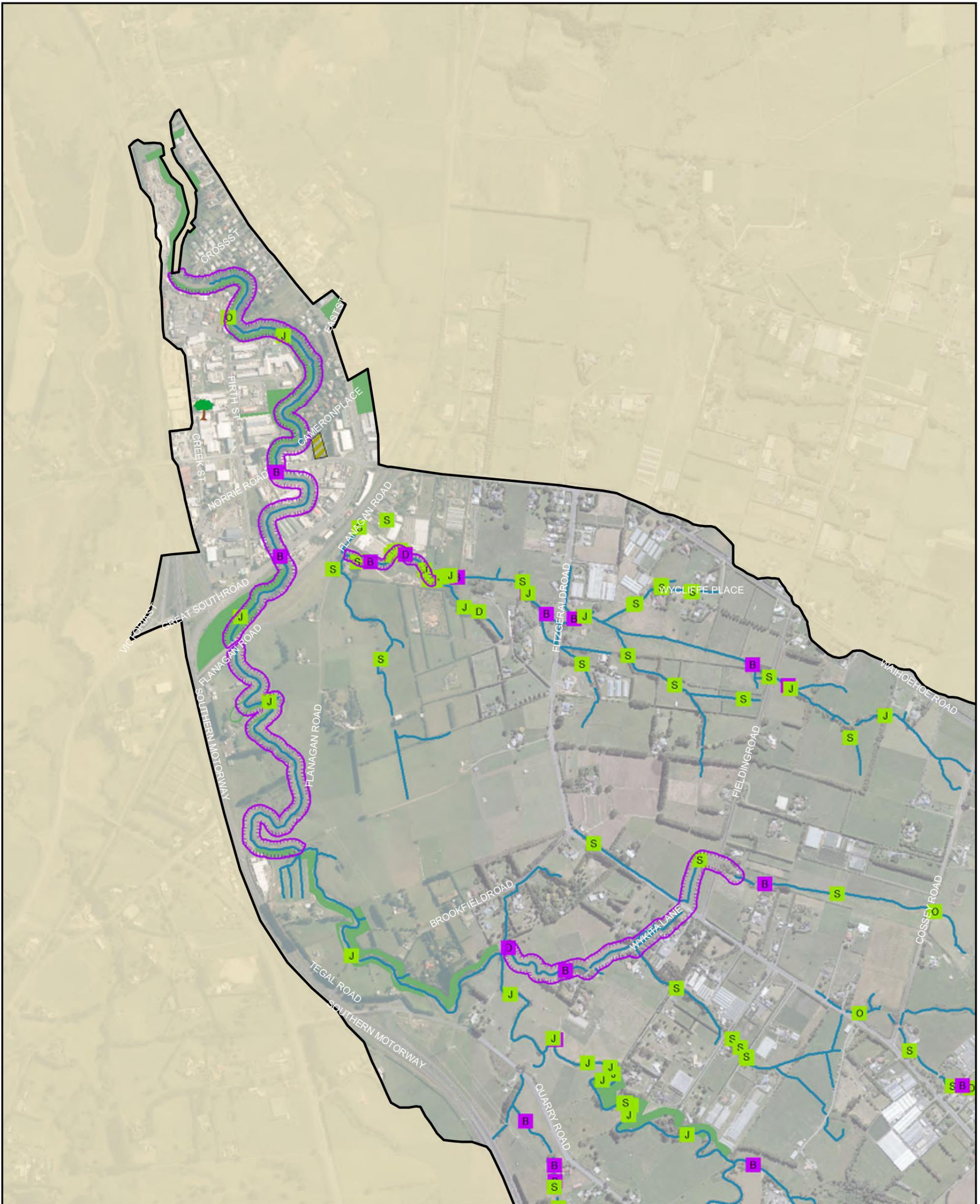
- S Spring
- T Tributary
- D Dam
- J Debris Jam
- O Other
- S SW or Drainage Pipe
- T Treatment Devices
- W Weir
- B Bridge
- S Land Slide/Slip
- D Litter Dumping
- M Manmade ford
- W Wildlife



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Map 7: Management Zones and Enhancement Opportunities



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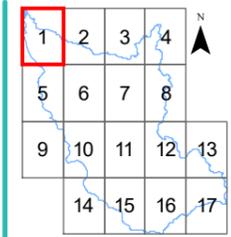
HINGAIA CATCHMENT STREAM SURVEY

- Notable Trees
- Outstanding Natural Features
- Historic Heritage Extent Of Place
- Significant Ecological Areas
- Public Open Space
- Enhancement Opportunities

- ### Management Zones
- MZ1
 - MZ2
 - MZ3
 - MZ4

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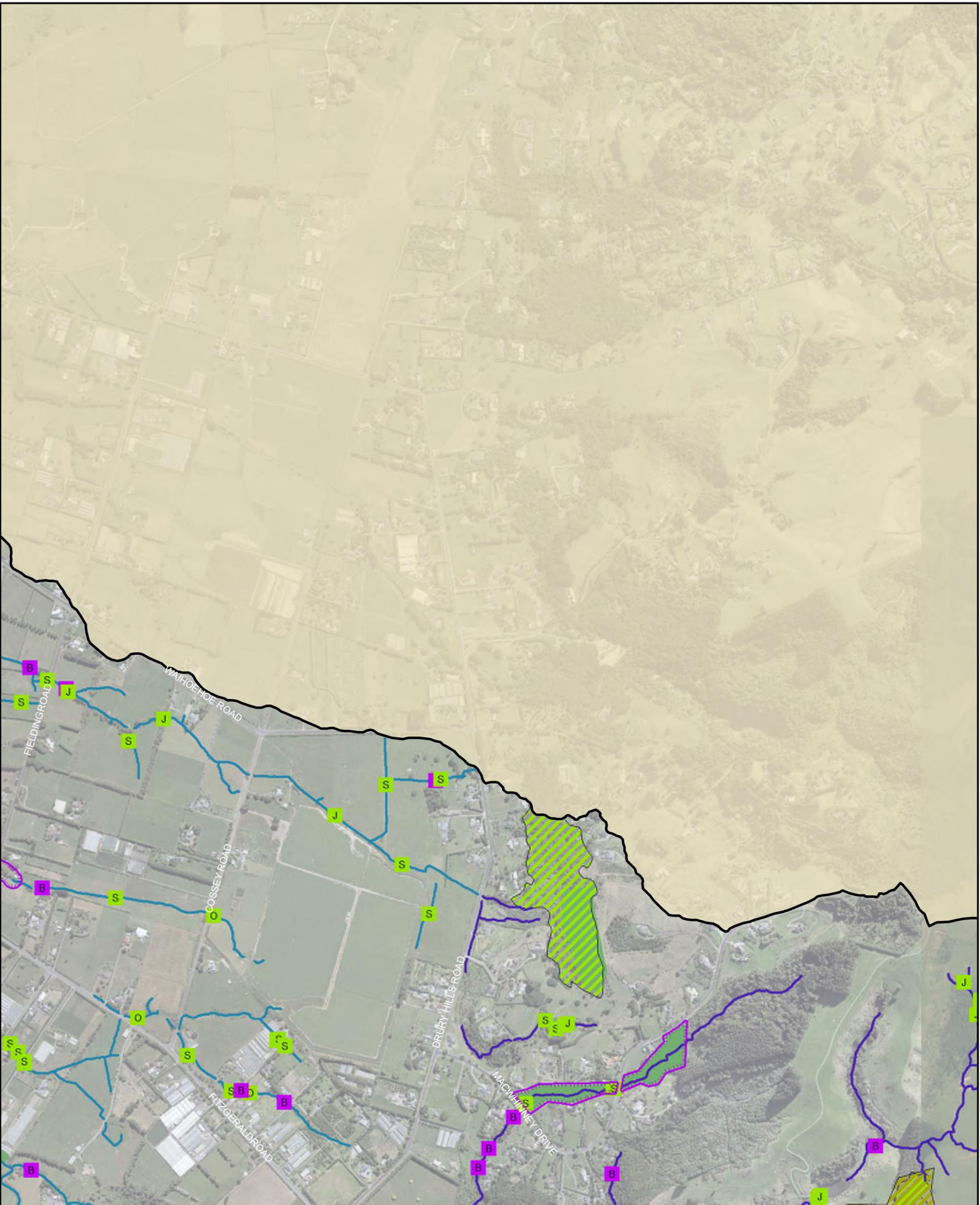
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- Dam
- Debris Jam
- Other
- SW or Drainage Pipe
- Treatment Devices
- Weir
- Bridge
- Land Slide/Slip
- Litter Dumping
- Manmade ford
- Wildlife



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HINGAIA CATCHMENT STREAM SURVEY

Notable Trees	Management Zones
Outstanding Natural Features	MZ1
Historic Heritage Extent Of Place	MZ2
Significant Ecological Areas	MZ3
Public Open Space	MZ4
Enhancement Opportunities	

0 0.25 0.5 1 km

Miscellaneous

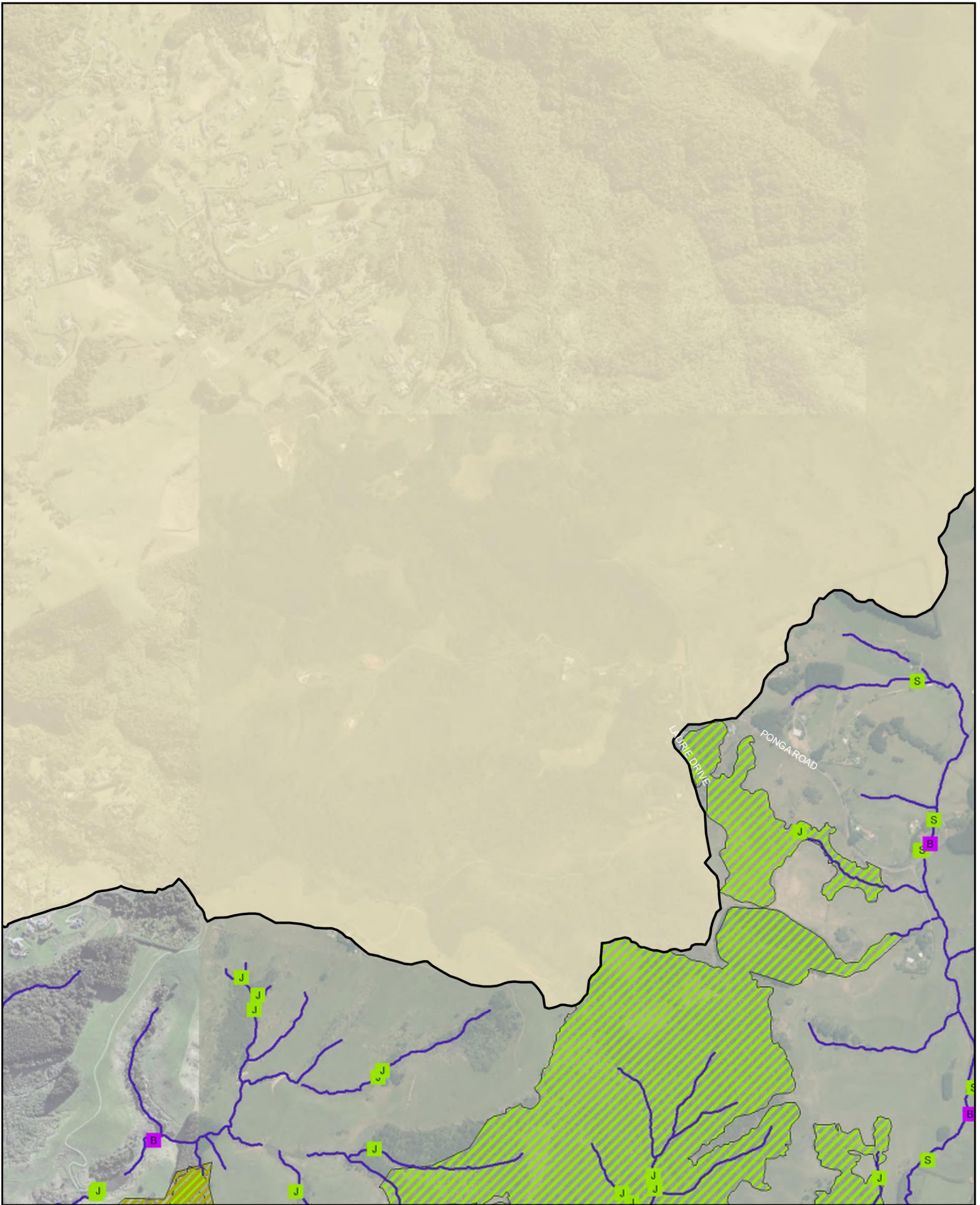
Spring	Treatment Devices
Tributary	Weir
Dam	Bridge
Debris Jam	Land Slide/Slip
Other	Litter Dumping
SW or Drainage Pipe	Manmade ford
	Wildlife

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Map 7: Management Zones and Enhancement Opportunities

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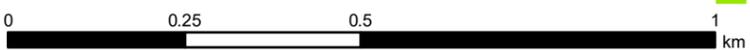
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- Notable Trees
- Outstanding Natural Features
- Historic Heritage Extent Of Place
- Significant Ecological Areas
- Public Open Space
- Enhancement Opportunities

- Management Zones**
- MZ1
 - MZ2
 - MZ3
 - MZ4

Miscellaneous

- Spring
- Tributary
- Dam
- Debris Jam
- Other
- SW or Drainage Pipe
- Treatment Devices
- Weir
- Bridge
- Land Slide/Slip
- Litter Dumping
- Manmade ford
- Wildlife



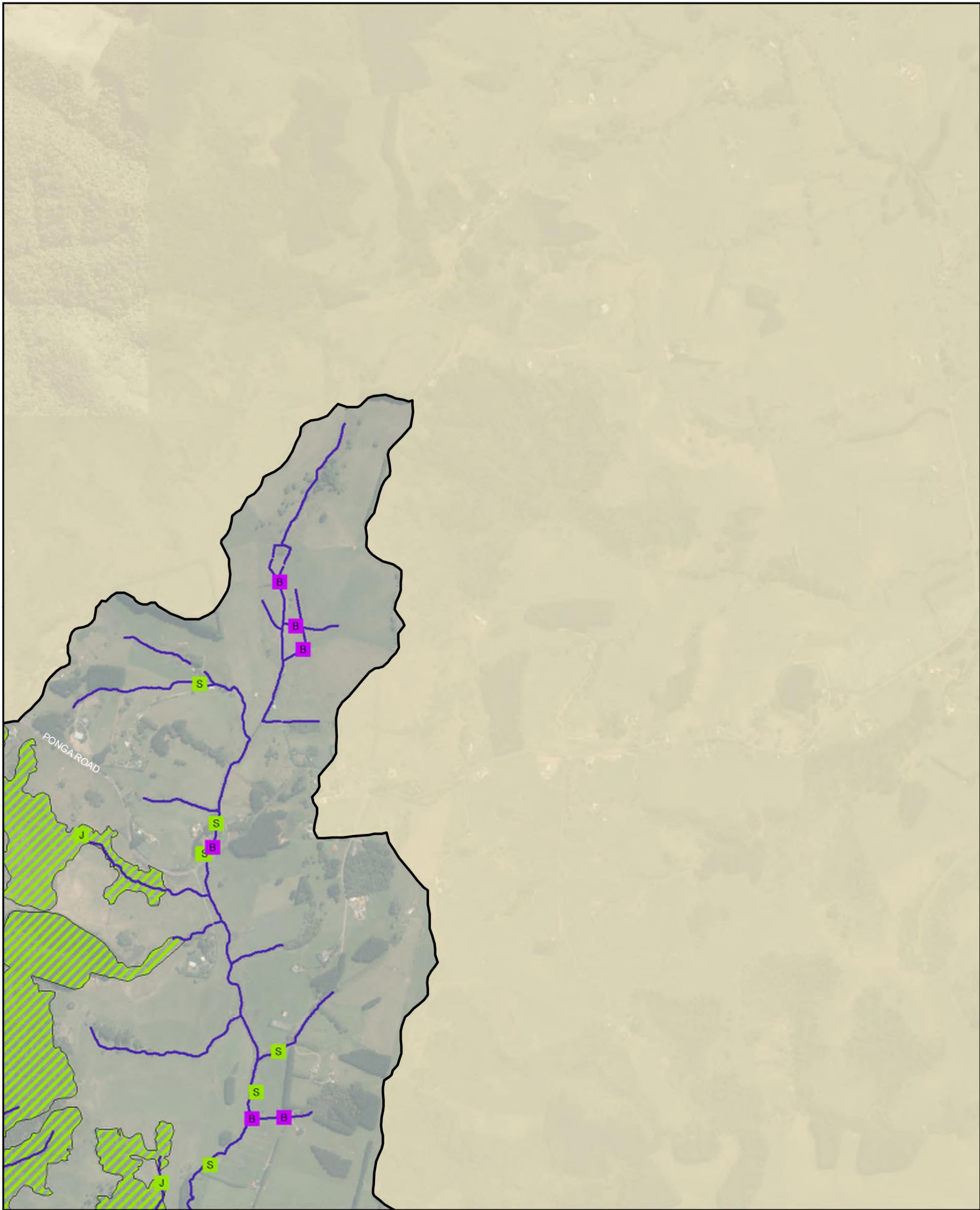
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Map 7: Management Zones and Enhancement Opportunities

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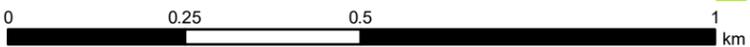
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- Historic Heritage Extent Of Place
- Significant Ecological Areas
- Public Open Space
- Enhancement Opportunities

Management Zones

- MZ1
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- MZ3
- MZ4

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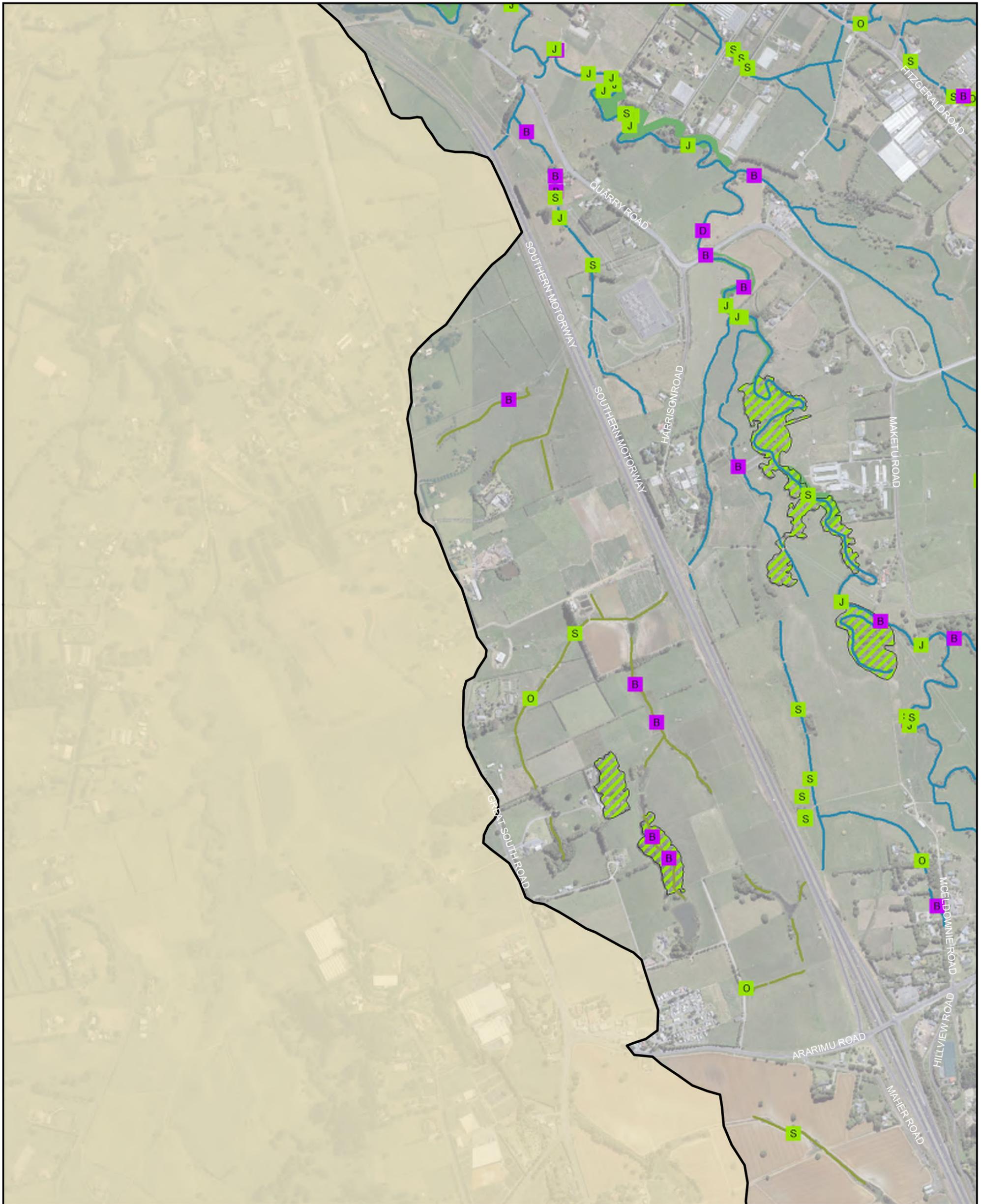
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- Dam
- Debris Jam
- Other
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- Wildlife



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Map 7: Management Zones and Enhancement Opportunities



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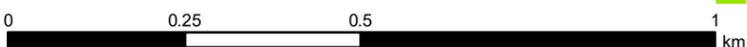
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- Historic Heritage Extent Of Place
- Significant Ecological Areas
- Public Open Space
- Enhancement Opportunities

Management Zones

- MZ1
- MZ2
- MZ3
- MZ4

Miscellaneous

- Spring
- Tributary
- Dam
- Debris Jam
- Other
- SW or Drainage Pipe
- Treatment Devices
- Weir
- Bridge
- Land Slide/Slip
- Litter Dumping
- Manmade ford
- Wildlife



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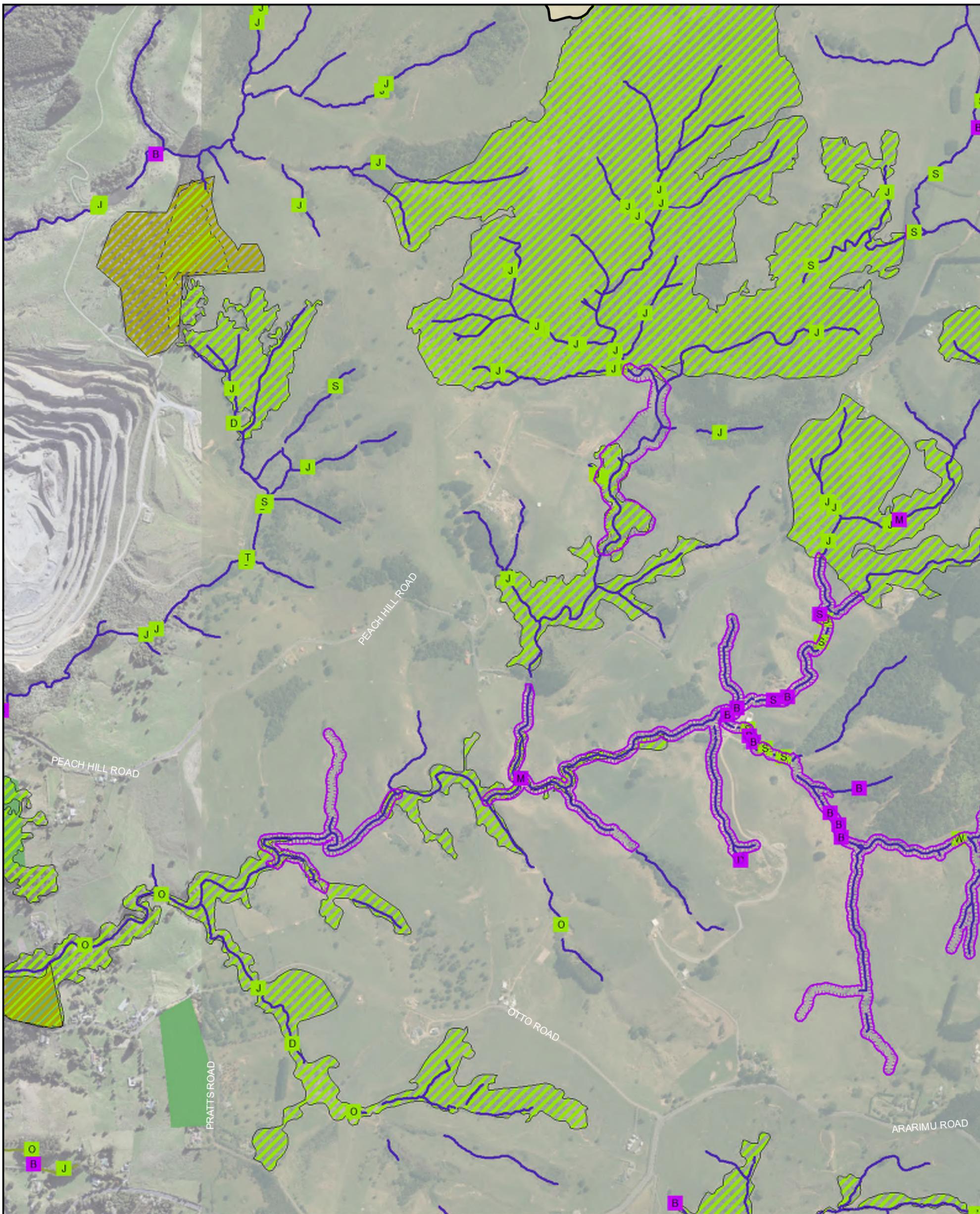
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Map 7: Management Zones and Enhancement Opportunities



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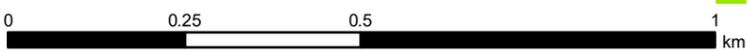
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- Public Open Space
- Enhancement Opportunities

Management Zones

- MZ1
- MZ2
- MZ3
- MZ4

Miscellaneous

- Spring
- Tributary
- Dam
- Debris Jam
- Other
- SW or Drainage Pipe
- Treatment Devices
- Weir
- Bridge
- Land Slide/Slip
- Litter Dumping
- Manmade ford
- Wildlife



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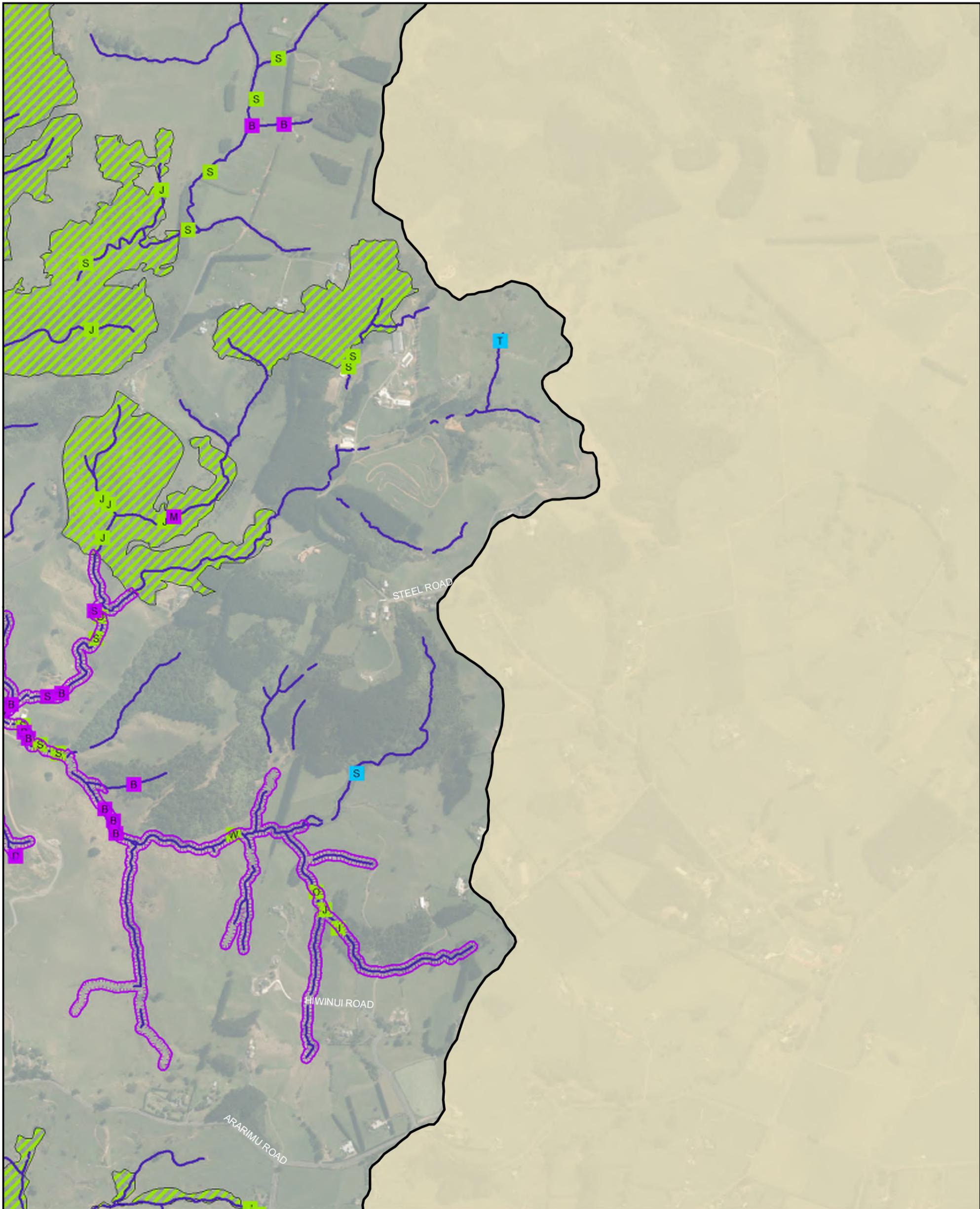
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Map 7: Management Zones and Enhancement Opportunities



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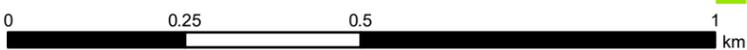
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Management Zones

- MZ1
- MZ2
- MZ3
- MZ4

Miscellaneous

- Spring
- Tributary
- Dam
- Debris Jam
- Other
- SW or Drainage Pipe
- Weir
- Bridge
- Land Slide/Slip
- Litter Dumping
- Manmade ford
- Wildlife
- Treatment Devices



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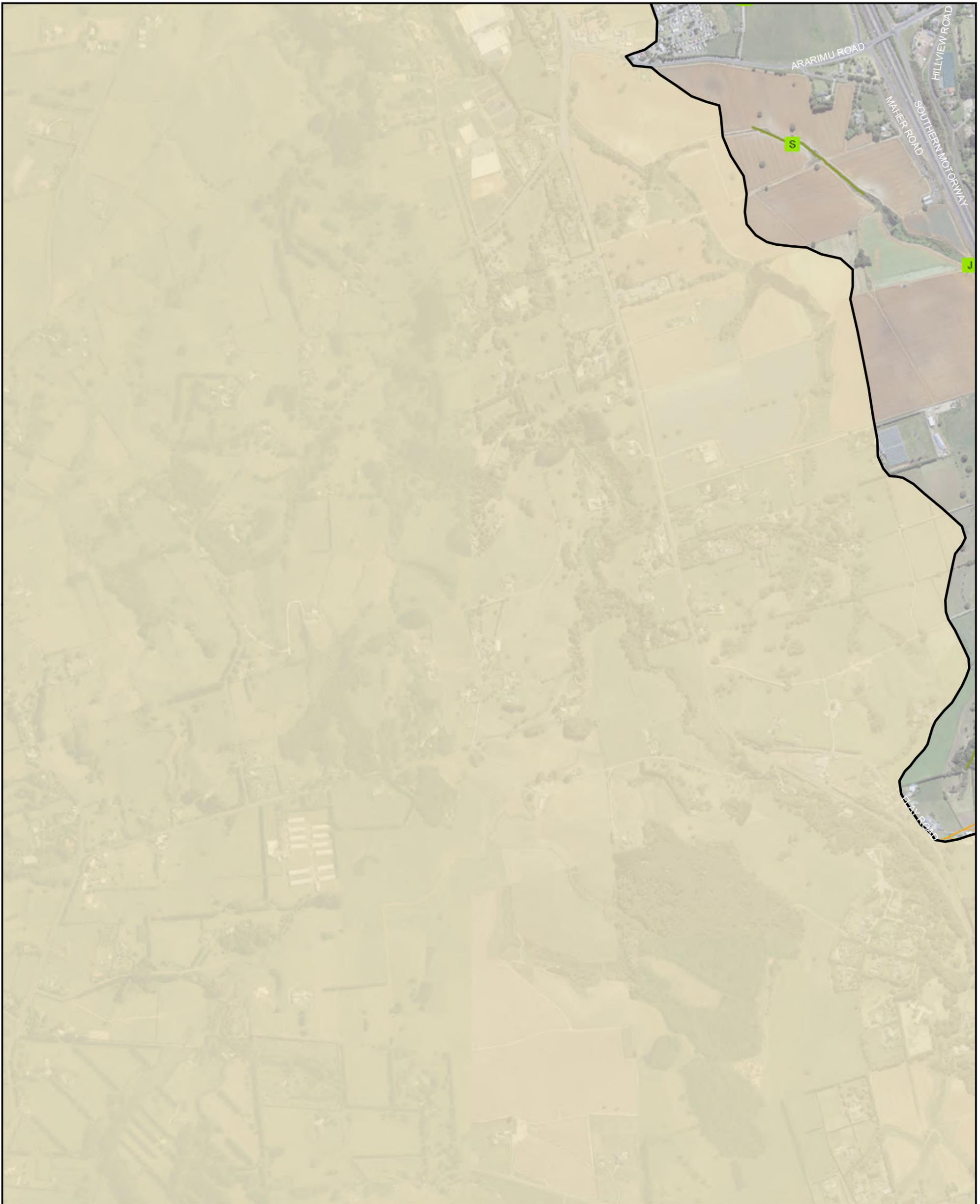
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Map 7: Management Zones and Enhancement Opportunities



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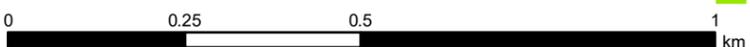
- Notable Trees
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- Historic Heritage Extent Of Place
- Significant Ecological Areas
- Public Open Space
- Enhancement Opportunities

Management Zones

- MZ1
- MZ2
- MZ3
- MZ4

Miscellaneous

- Spring
- Tributary
- Dam
- Debris Jam
- Other
- SW or Drainage Pipe
- Treatment Devices
- Weir
- Bridge
- Land Slide/Slip
- Litter Dumping
- Manmade ford
- Wildlife



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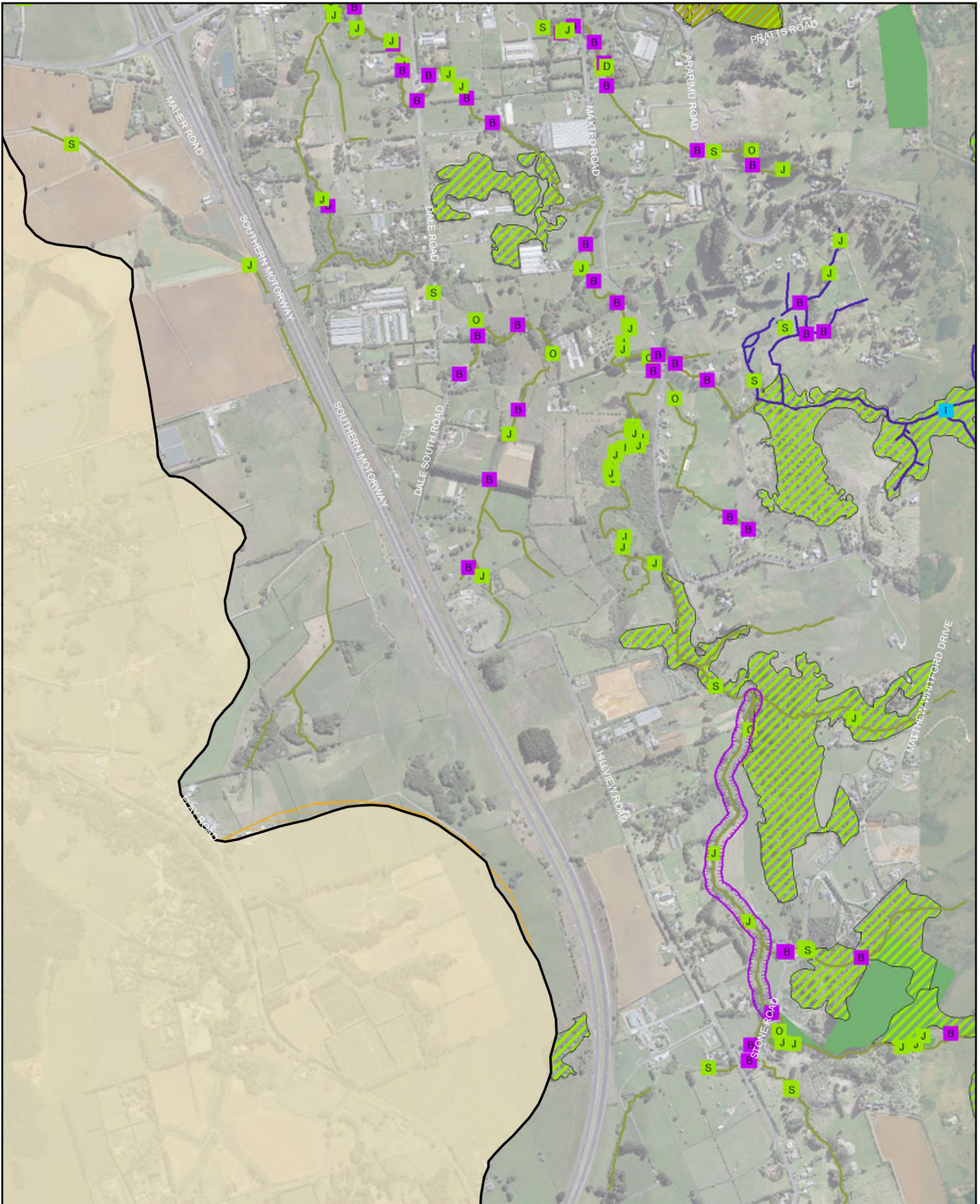
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Map 7: Management Zones and Enhancement Opportunities



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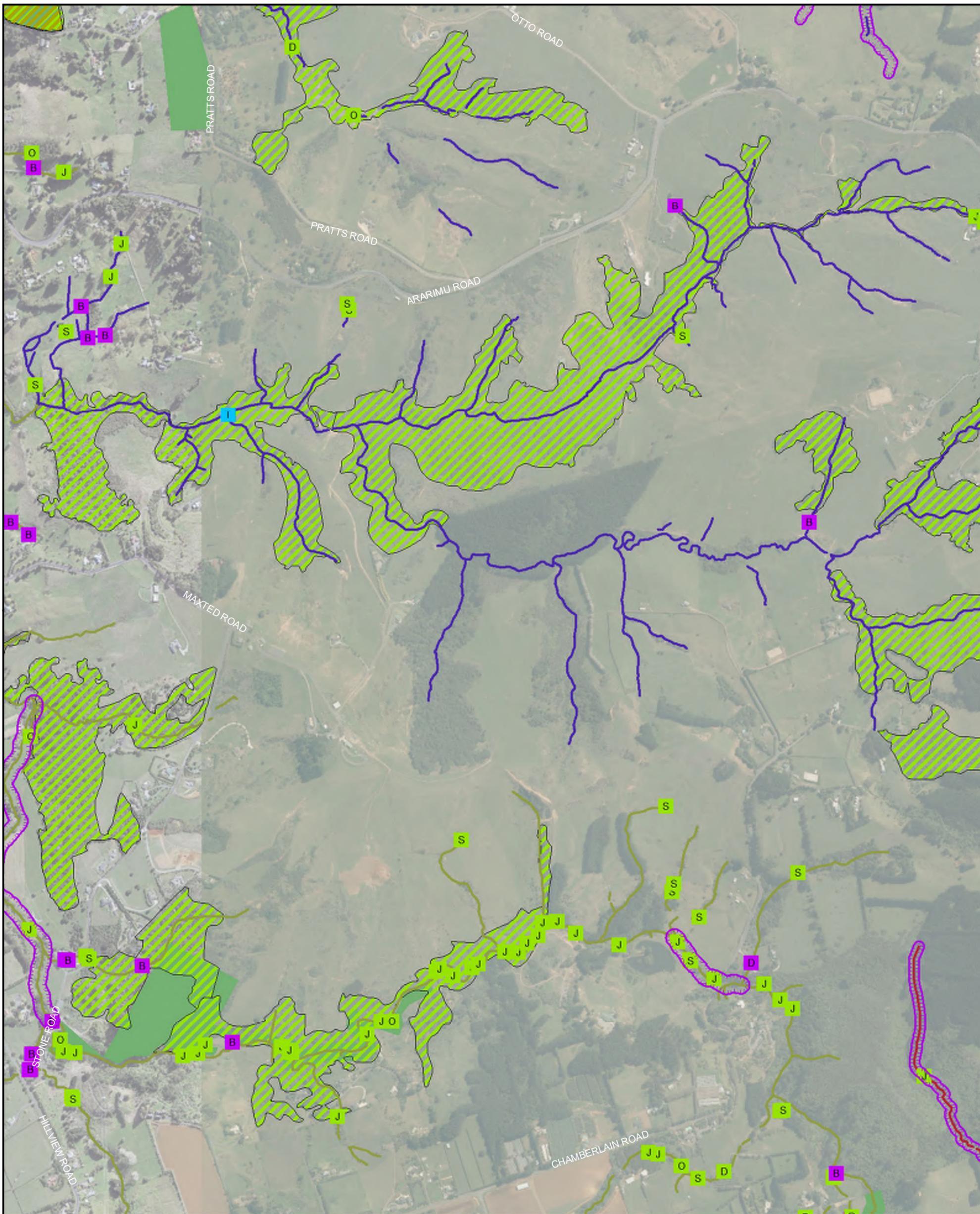


HINGAIA CATCHMENT STREAM SURVEY

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Map 7: Management Zones and Enhancement Opportunities



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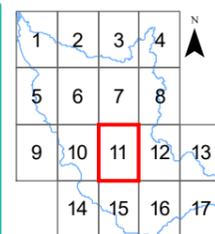
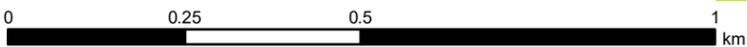
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- Outstanding Natural Features
- Historic Heritage Extent Of Place
- Significant Ecological Areas
- Public Open Space
- Enhancement Opportunities

Management Zones

- MZ1
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- MZ3
- MZ4

Miscellaneous

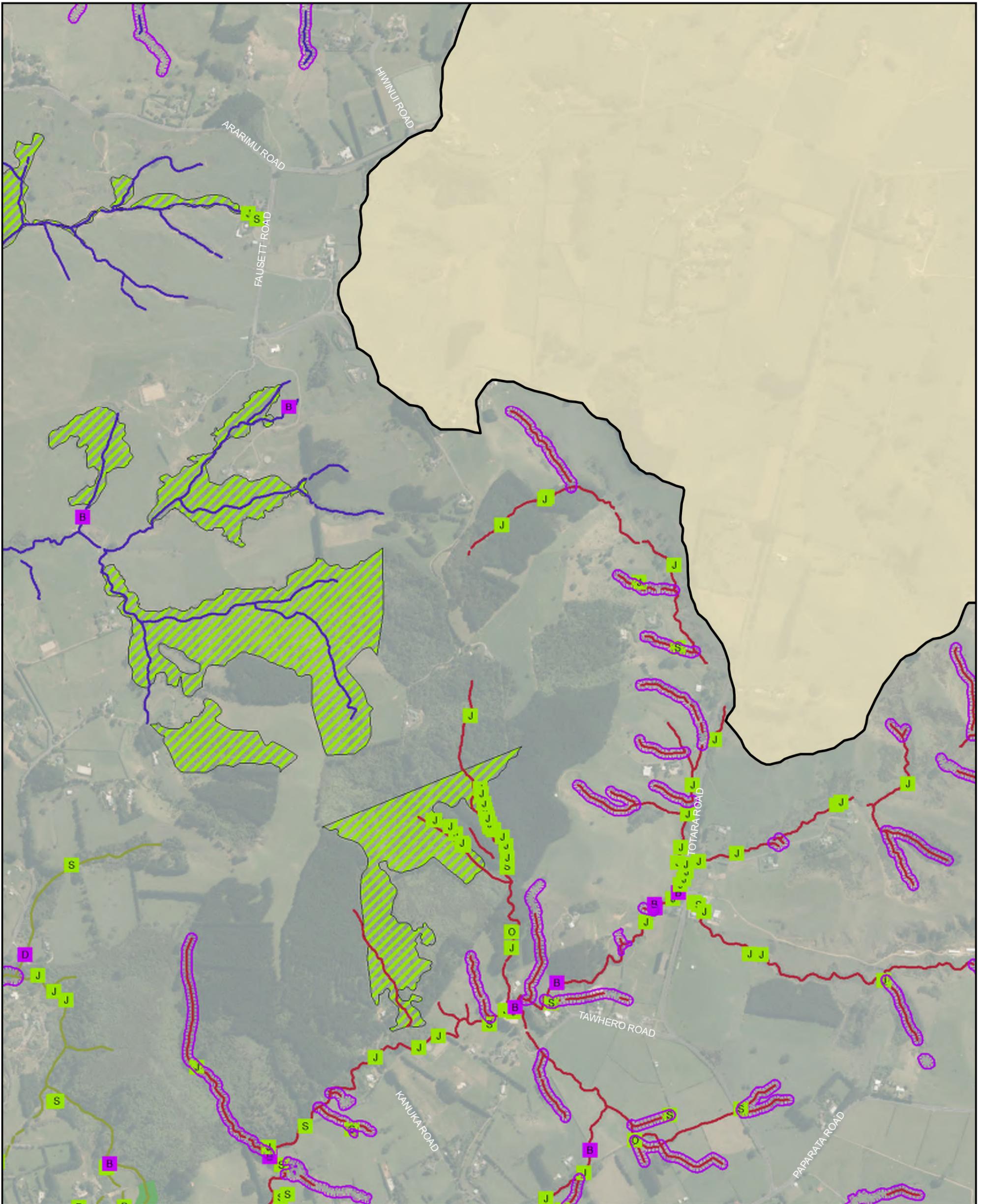
- Spring
- Tributary
- Dam
- Debris Jam
- Other
- SW or Drainage Pipe
- Treatment Devices
- Weir
- Bridge
- Land Slide/Slip
- Litter Dumping
- Manmade ford
- Wildlife



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Map 7: Management Zones and Enhancement Opportunities



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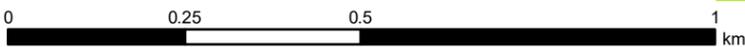
HINGAIA CATCHMENT STREAM SURVEY

- Notable Trees
- Outstanding Natural Features
- Historic Heritage Extent Of Place
- Significant Ecological Areas
- Public Open Space
- Enhancement Opportunities

- Management Zones**
- MZ1
 - MZ2
 - MZ3
 - MZ4

Miscellaneous

- S Spring
- T Tributary
- D Dam
- J Debris Jam
- O Other
- S SW or Drainage Pipe
- T Treatment Devices
- W Weir
- B Bridge
- S Land Slide/Slip
- D Litter Dumping
- M Manmade ford
- W Wildlife

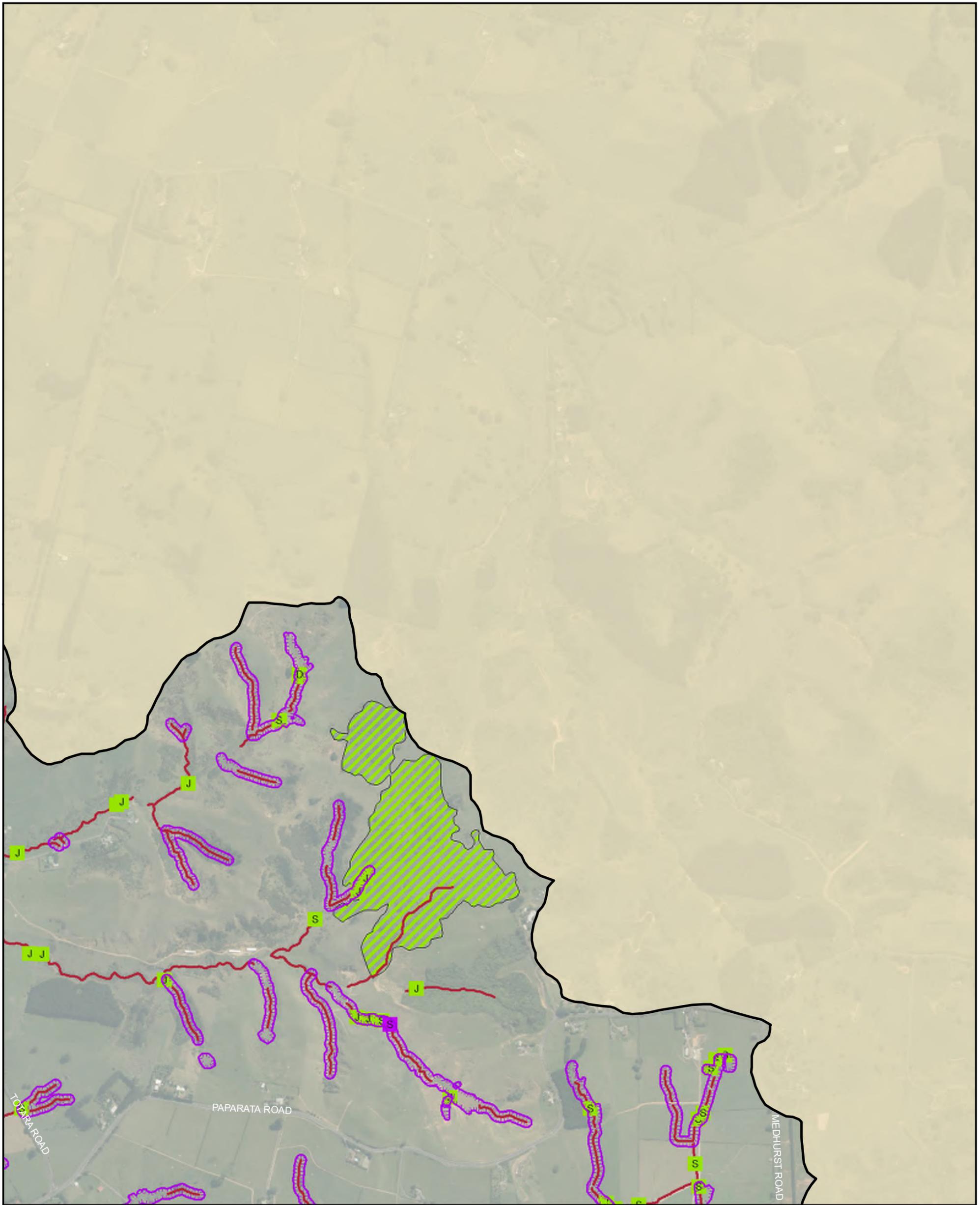


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Map 7: Management Zones and Enhancement Opportunities

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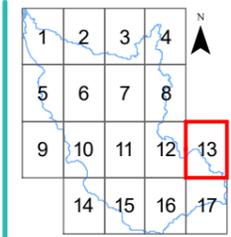


- Notable Trees
- Outstanding Natural Features
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- Management Zones**
- MZ1
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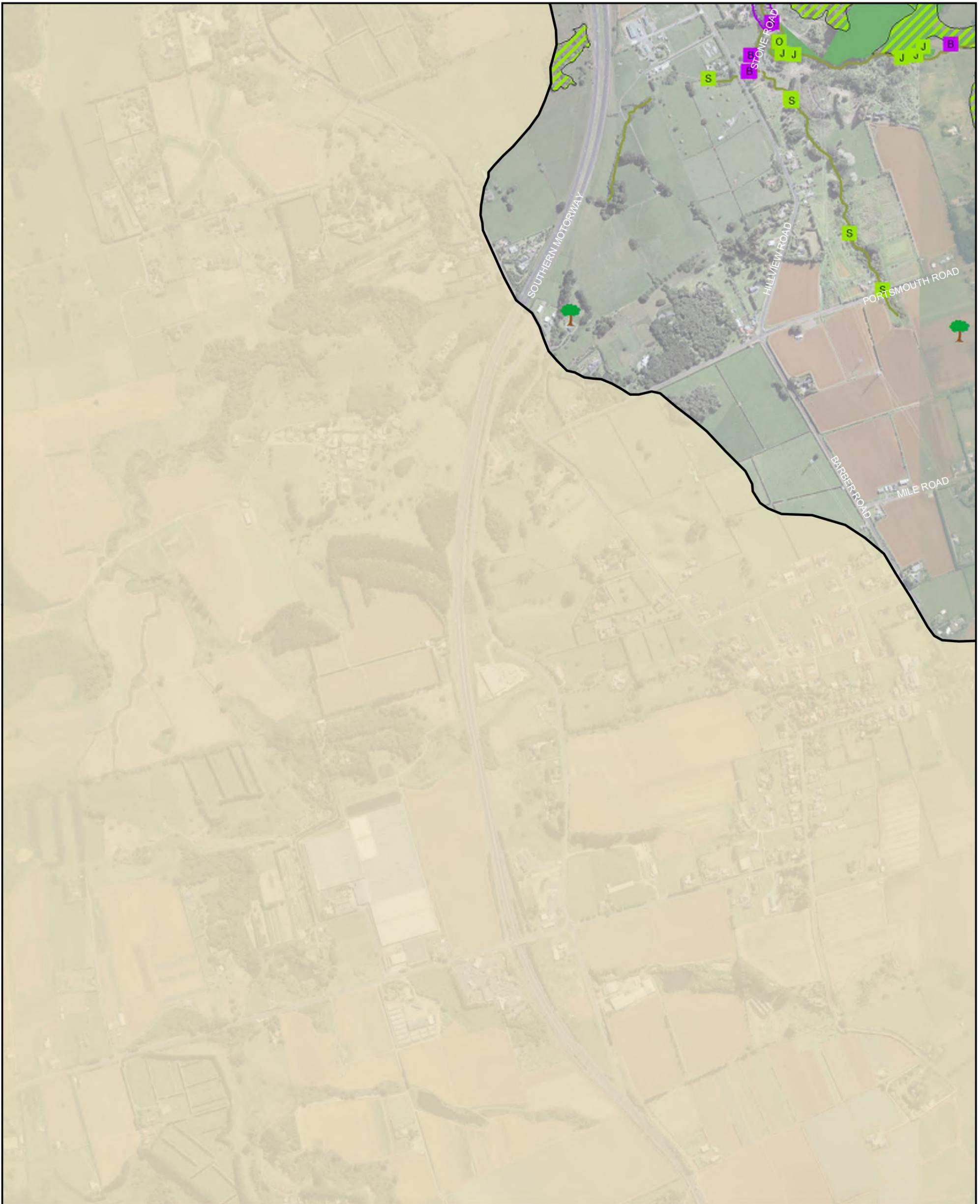
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- S SW or Drainage Pipe
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- S Land Slide/Slip
- D Litter Dumping
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- W Wildlife



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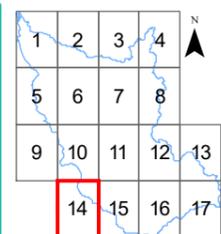
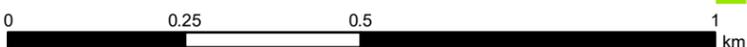
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Management Zones

- MZ1
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- MZ4

Miscellaneous

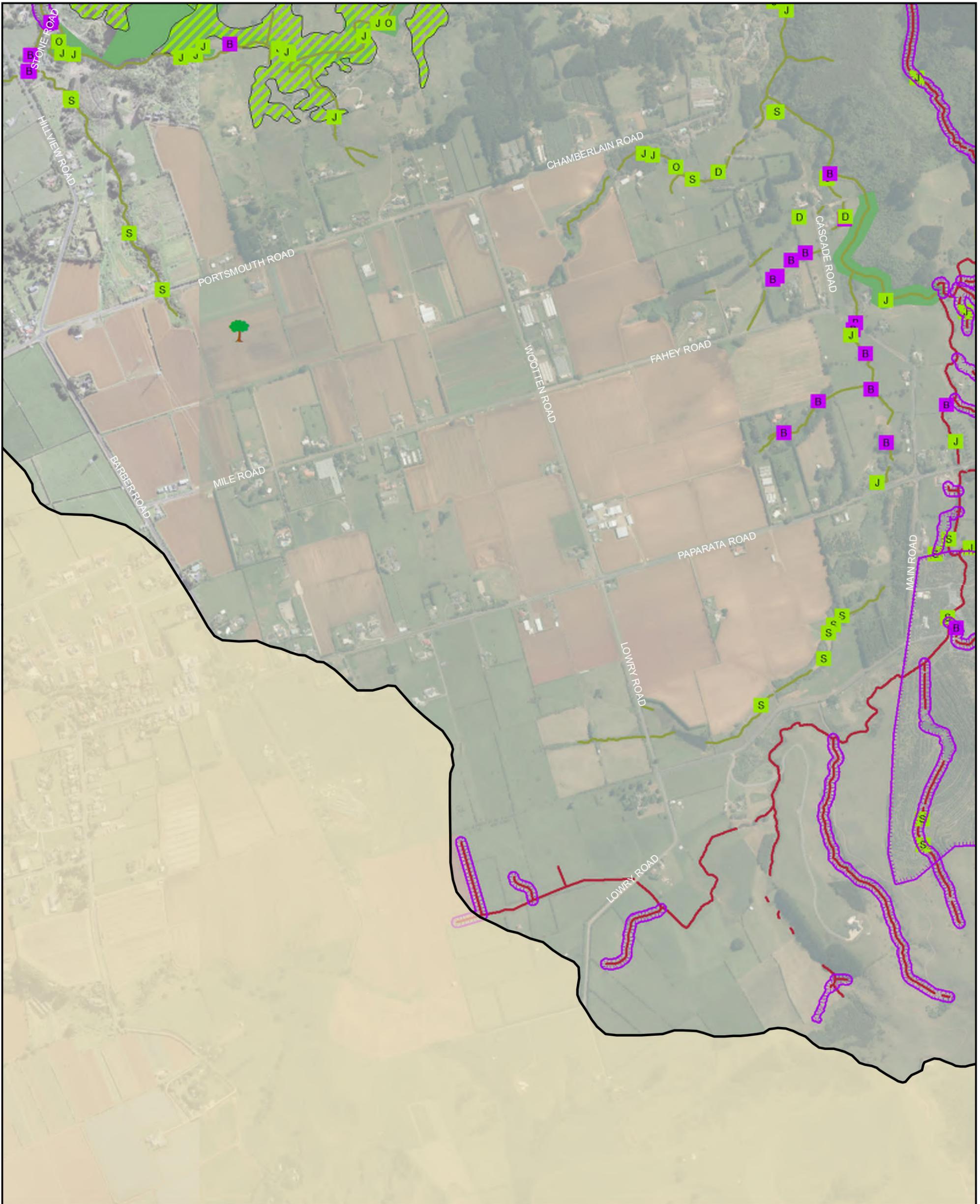
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Map 7: Management Zones and Enhancement Opportunities



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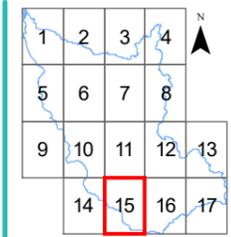
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- ### Management Zones
- MZ1
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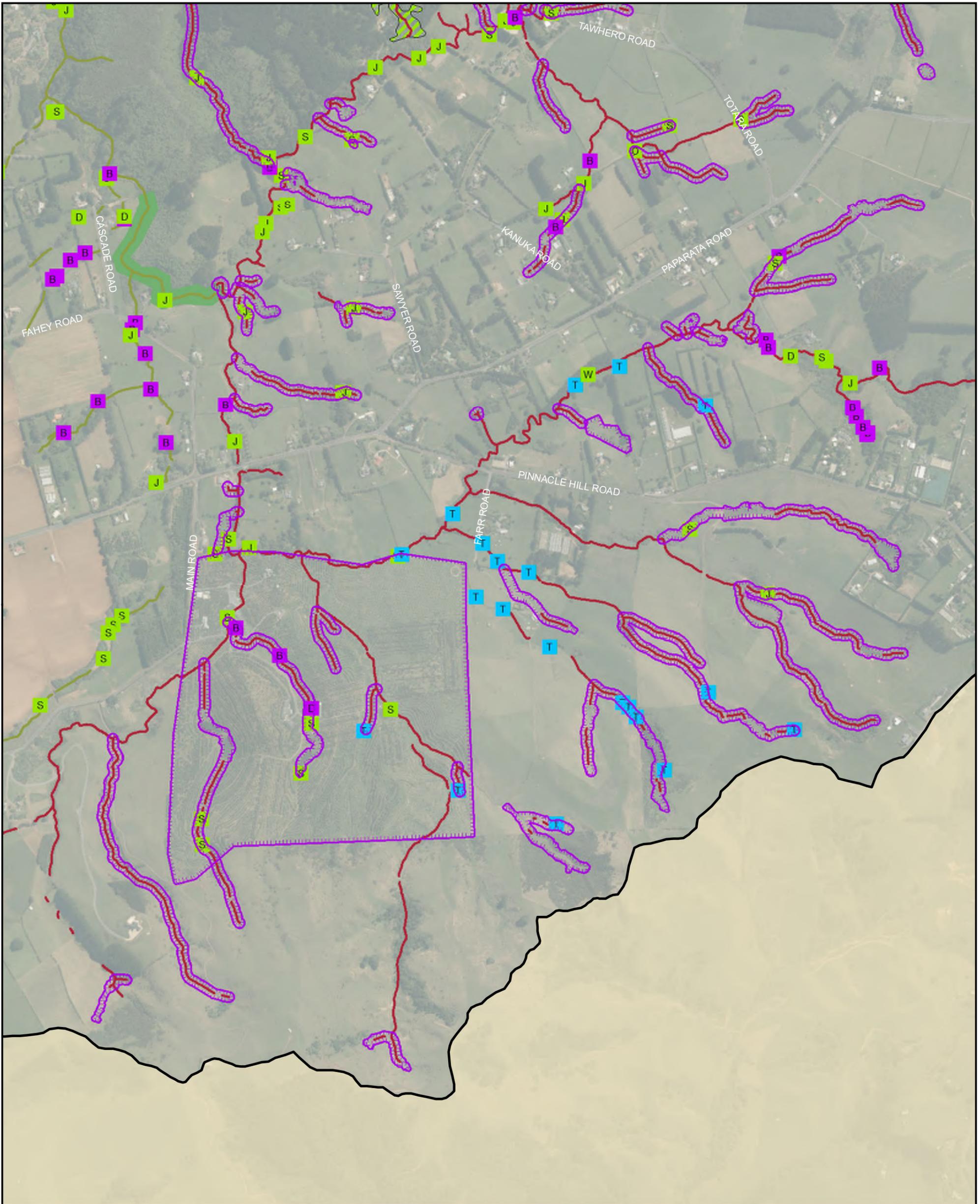
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- Weir
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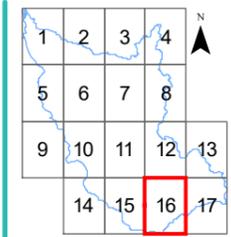
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- ### Management Zones
- MZ1
 - MZ2
 - MZ3
 - MZ4

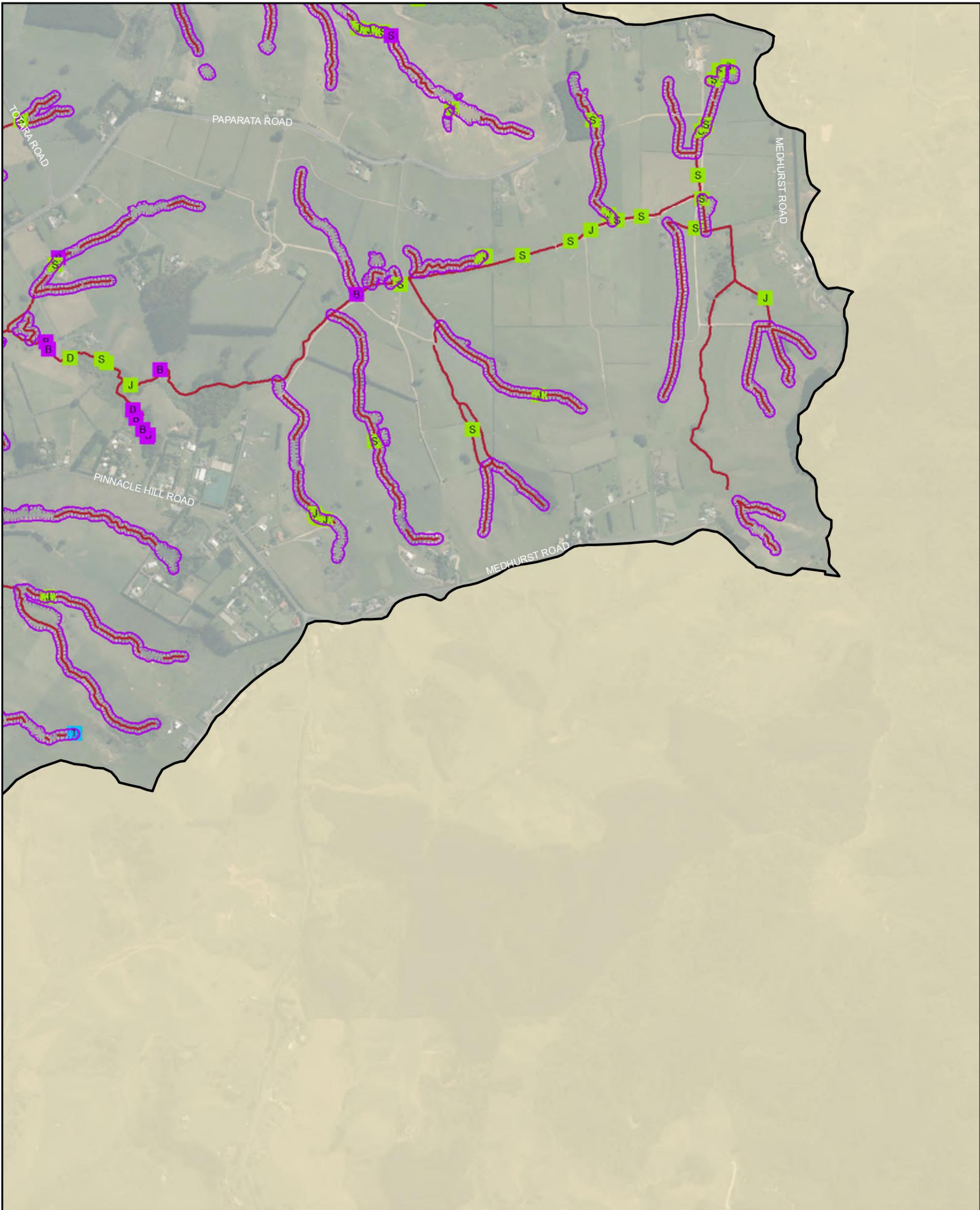
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HINGAIA CATCHMENT STREAM SURVEY

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0 0.25 0.5 1 km

Appendix B SEV Results

SEV Scores

Ecological Functions	SEV1	SEV2	SEV3	SEV4	SEV5
Hydraulic					
Natural Flow Regime	0.11	1.00	1.00	0.39	0.40
Floodplain effectiveness	0.24	0.98	0.37	0.15	0.23
Connectivity for migrations	1.00	1.00	1.00	1.00	1.00
Connectivity to groundwater	0.81	1.00	1.00	0.73	0.73
Hydraulic function mean score	0.54	0.99	0.84	0.57	0.59
Biogeochemical					
Water temperature control	0.08	0.62	0.04	0.00	0.00
Dissolved oxygen maintained	0.45	1.00	1.00	0.45	0.68
Organic matter input	0.09	0.95	0.08	0.00	0.00
Instream particle retention	0.20	1.00	0.97	0.20	0.20
Decontamination of pollutants	0.38	0.67	0.36	0.29	0.61
Biogeochemical function mean score	0.24	0.85	0.49	0.19	0.30
Habitat Provision					
Fish spawning habitat	0.58	0.50	0.50	0.05	0.05
Habitat for aquatic fauna	0.35	0.82	0.57	0.26	0.25
Habitat provision mean score	0.46	0.66	0.54	0.16	0.15
Biodiversity					
Fish fauna intact	0.23	0.50	0.57	0.37	0.23
Invertebrate fauna intact	0.28	0.68	0.46	0.48	0.18
Riparian vegetation intact	0.05	0.91	0.25	0.09	0.11
Biodiversity function mean score	0.19	0.70	0.42	0.31	0.17
Overall mean value (SEV)	0.35	0.83	0.58	0.32	0.33

Order	Family	Genus	Site				
			SEV 1	SEV 2	SEV 3	SEV 4	SEV 5
Ephemeroptera	Coloburiscidae	<i>Coloburiscus</i>		1			
	Leptophlebiidae	<i>Acanthophlebia</i>		1			
		<i>Deleatidium</i>		1			
		<i>Zephlebia</i>		1	1		
	Nesameletidae	<i>Nesameletus</i>		1			
	Rallidentidae	<i>Rallidens</i>		1			
Plecoptera	Gripopterygidae	<i>Zelandobius</i>	1				
Trichoptera	Conoesucidae	<i>Olinga</i>		1	1		
		<i>Pycnocentria</i>			1		
		<i>Pycnocentrodes</i>		1	1		
	Helicopsychidae	<i>Helicopsyche</i>		1			
	Hydrobiosidae	<i>Psilochorema</i>				1	
	Hydropsychidae	<i>Aoteapsyche</i>		1	1		
	Hydroptilidae	<i>Oxyethira</i>			1	1	
	Leptoceridae	<i>Hudsonema</i>			1		
	Polycentropodidae	<i>Plectrocnemia</i>				1	
		<i>Polyplectropus</i>		1		1	
Hemiptera	Corixidae	<i>Sigara</i>				1	
Coleoptera	Elmidae				1		
Odonata: Zygoptera		<i>Xanthocnemis</i>	1			1	
Diptera	Chironomidae	<i>Chironomus</i>	1				
		<i>Maoridiamesa</i>			1		
		<i>Orthoclaadiinae</i> (excl. <i>Corynoneura</i>)	1		1		
		<i>Polypedilum</i>	1				
		<i>Tanypodinae</i>				1	
		<i>Tanytarsini</i>			1		
	Culicidae					1	
	Muscidae		1			1	
	Psychodidae		1				
	Simuliidae	<i>Austrosimulium</i>				1	1
	Tipulidae	<i>Aphrophila</i>			1		

Order	Family	Genus	Site				
			SEV 1	SEV 2	SEV 3	SEV 4	SEV 5
		<i>Zelandotipula</i>				1	
Megaloptera		<i>Archichauliodes</i>		1	1		
Collembola							1
Crustacea	Amphipoda	<i>Paraleptamphopus</i>				1	
		<i>Talitridae</i>	1				1
	Copepoda					1	
	Isopoda	Isopoda (excl. <i>Paranthur</i>)					1
	Ostracoda			1		1	1
Acarina						1	
Arachnida		<i>Dolomedes</i>					1
Mollusca	Gastropoda	<i>Latia</i>		1			
		<i>Lymnaeidae</i>	1			1	
		<i>Physa = Physella</i>	1			1	1
		<i>Potamopyrgus</i>	1	1		1	1
Mollusca: Bivalvia	Sphaeriidae					1	
Hirudinea			1				1
Oligochaeta			1	1	1	1	
Platyhelminthes					1		
Number of taxa			13	16	15	20	9

Fish species caught during SEV surveys

Fish Species	Common name	Sites				
		SEV1	SEV2	SEV3	SEV4	SEV5
<i>Anguilla australis</i>	Shortfin eel	11		*	8	6
<i>Anguilla dieffenbachii</i>	Longfin eel		1	*		

* Too deep to electric fish, but previously recorded from this stream reach

Appendix C Engineering Maintenance Works Summary

Tribcode	Asset_ID	Type	Material	GIS	Maintenance	Erosion	Land Ownership	Asset Ownership	Safety	Fish Barrier	Notes
HIN_6_001_ F	1115669	Outlet point (no structure)	None	Correct in GIS	Structural	Slight	Council	Council	Does Not Apply	None	Outlet no structure with loose large rocks as dissipating structure. Dissipating structure in average condition with gaps between rocks.
HIN_6_001_ E	1174015	Standard Outlet (Headwall and Wingwalls)	Timber	Correct in GIS	Structural	Slight	Council	Council	Appears Safe	None	Outlet with wooden structure as headwall. In average condition with slight erosion on access away above. Wood is starting to bow, and piles are cracking.
HIN_6_001_ D	1115624	Outlet point (no structure)	None	Correct in GIS	Does Not Apply	Moderate	Council	Council	Does Not Apply	None	Pipe is submerged beneath water. Water runs under eroded sediment and down the bank towards stream.
HIN_6_001_ E	UKNA002	Standard Inlet (Headwall and Wingwalls)	Timber	Not in GIS	Structural	Slight	Public	Unknown	Appears Safe	None	Inlet from overland flow path. Inlet needs structural repairs as the gravel behind headboard has eroded away and the headboard is no longer providing its normal function.
HIN_2_025_ A	UKNA030	Standard Inlet (Headwall and Wingwalls)	Timber	Not in GIS	Structural	Slight	Public	Unknown	Not Safe - Drop 1.5m	Swimmer	Poor condition structure as the timber poles of structure have fallen down from their original place. Unable to access inlet fully as it is down a large steep bank. High velocity at inlet is barrier to swimmers
HIN_2_041_ A	UKNA150	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	Structural	None	Public	Unknown	Appears Safe	None	Outlet from culvert under road. Structure is made from concrete poles but is in bad condition and poles are just placed all around the outlet area not acting as structure and could cause blockage.
MAK_4_063_ C	UKNA240	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	Erosion Protection	Moderate	Public	Unknown	Not Safe - Drop 1.5m	None	Culvert inlet structure is a couple of boulders and concrete debris. Erosion underneath is causing structural failure and erosion risk
HIN_6_002_ C	UKNA005	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	Vegetation Clearance	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Headwall with no dissipating structure. Lots of vegetation build up around wingwalls of structure that should be removed, overall structure is working fine
HIN_1_010_ A	UKNA016	Standard Inlet (Headwall and Wingwalls)	Timber	Not in GIS	Structural	None	Public	Unknown	Appears Safe	None	Inlet with structure (headwall only) to small culvert some erosion around structure but no major issues
HIN_1_042_ C	UKNA023	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	Vegetation Clearance	Slight	Public	Unknown	Appears Safe	Swimmer	Very high water level, almost to top of culvert, suggests maybe a blockage. 2m from inlet culvert is a drop height of 0.25m, barrier to swimmers. Debris in inlet could be cleared. Otherwise structure no significant issues.
HIN_1_042_ B	UKNA029	Standard Outlet (Headwall and Wingwalls)	Other	Not in GIS	Debris Removal	Slight	Public	Unknown	Not Safe	None	Culvert outlet fully submerged so assessed on what could be seen. Culvert and downstream culvert both potentially blocked causing water to back up
HIN_2_020_ A	UKNA065	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	Structural	Moderate	Public	Unknown	Appears Safe	None	Structure is rocks placed around top and sides of culvert. Is in average condition as they don't look very sturdy, could fall into stream and block but at this stage no significant issue or barrier to fish passage. Some moderate erosion due to stock
HIN_3_036_ A	UKNA103	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	Vegetation Clearance	Slight	Mixed	Unknown	Not Safe - Drop 1.5m	None	Concrete headwall and wingwalls good condition. Washed down branches at culvert inlet are partial barrier to fish passage.

Tribcode	Asset_ID	Type	Material	GIS	Maintenance	Erosion	Land Ownership	Asset Ownership	Safety	Fish Barrier	Notes
HIN_2_033_B	UKNA104	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	Structural	Moderate	Mixed	Unknown	Not Safe	None	Inlet wingwalls are starting to degrade as there are cracks in the concrete. Banks either side of inlet are eroding and slumping causing further structural issues to wingwalls. No barrier to fish passage
HIN_2_039_A	UKNA147	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	Structural	Slight	Public	Unknown	Not Safe - Drop 1.5m	Anguilliform	Inlet to 3 culverts running under road. There is a temporary barrier as debris build up at inlet to middle culvert. There is also some structural damage to headwall, with some concrete bricks becoming loose, which will need repairing
HIN_2_041_A	UKNA161	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	Structural	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet structure made of rocks with a rock dissipating structure. Drop of 0.2 onto dissipating structure is barrier to fish passage, as mentioned in culvert assessment.
HIN_2_041_A	UKNA162	Standard Inlet (Headwall and Wingwalls)	Timber	Not in GIS	Vegetation Clearance	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet made of timber poles on side of road. Rocks at base of inlet in stream channel, possibly for structure. Could use vegetation clearance otherwise no significant issues/fish barrier. There is post across top of inlet for structure as well.
MAK_3_037_C	UKNA168	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	Structural	Slight	Public	Unknown	Not Safe	None	Inlet on side of road with headwall made of rocks and two metal pipes. Could use structural maintenance otherwise no issues no barrier to fish passage
MAK_3_084_B	UKNA171	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	Structural	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet to culvert under road. Structure is a headwall and wingwalls, which are made from concrete blocks. In average condition as it needs to be maintained, although still functioning. No significant issues or barriers to fish passage
HIN_1_186_E	UKNA180	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	Structural	Moderate	Private	Unknown	Not Safe - Drop 1.5m	None	Inlet on side of private road. Structure is made of large boulders and concrete. Some erosion on surrounding banks
HIN_2_155_B	UKNA181	Standard Outlet (Headwall and Wingwalls)	Other	Not in GIS	Erosion Protection	Moderate	Public	Unknown	Not Safe - Drop 1.5m	None	Head wall structure is large boulders placed around culvert outlet. Moderate erosion behind boulders from road runoff
HIN_3_090_C	UKNA195	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	Structural	Slight	Public	Unknown	Not Safe	Anguilliform	Inlet with rocks as headwall under road sitting in stream channel next to identical inlet. No water currently flowing through so low flow impedance is barrier to fish passage. Soil and vegetation have infilled stream channel at inlet.
HIN_1_352_A	UKNA208	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	Structural	Moderate	Public	Unknown	Appears Safe	None	Average condition inlet with rock and concrete as head and wing walls. Moderate erosion on surrounding banks has caused structure to degrade. No barriers to fish passage
HIN_2_161_A	UKNA212	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	Debris Removal	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet to culvert under road. No significant issues or barriers to fish passage
HIN_2_161_A	UKNA213	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	Vegetation Clearance	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet to culvert under road. No significant issues or barriers to fish passage
HIN_2_161_A	UKNA214	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	Vegetation Clearance	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet to culvert, surrounded by steep banks, covered with blackberry so unable to see. Only have photo of general area. Have copied inlet assessment, but may vary

Tribcode	Asset_ID	Type	Material	GIS	Maintenance	Erosion	Land Ownership	Asset Ownership	Safety	Fish Barrier	Notes
HIN_2_146_B	UKNA229	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	Erosion Protection	Moderate	Public	Unknown	Appears Safe	None	Functional culvert inlet structure. Some erosion behind/underneath structure causing water to flow under culvert
HIN_2_011_A	UKNA105	Inlet point (no structure)	None	Not in GIS	Erosion Protection	Moderate	Public	Unknown	Does Not Apply	Swimmer	Inlet no structure. Some erosion on surrounding banks. Dissipating structure is made of rocks with a drop of 1m so fish barrier
HIN_1_323_A	UKNA201	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	Erosion Protection	Moderate	Public	Unknown	Not Safe	None	Inlet to culvert under road. Structure is rock embedded in bank. Bank is eroding away and falling into culvert. No upstream habitat
HIN_2_145_C	UKNA210	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	Erosion Protection	Moderate	Public	Unknown	Not Safe - Drop 1.5m	Swimmer	Outlet to culvert under road. Structure is made of concrete. Drop of 0.6m from culvert over rock dissipating structure to channel. Complete barrier to swimmers.
HIN_6_002_B	UKNA004	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Outlet in average condition as underneath pipe has eroded away and in some places down bank
MAK_3_037_B	UKNA167	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Outlet to culvert under road. No structure or significant issues associated. Some moderate erosion on TLB
HIN_1_218_H	UKNA176	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Mixed	Unknown	Does Not Apply	None	Outlet no structure. No water currently flowing. Moderate erosion on surrounding banks. Unable to access outlet due to tall, steep banks.
HIN_1_218_I	UKNA178	Inlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Inlet to culvert under road. No structure or upstream habitat. Moderate erosion around inlet and active erosion occurring.
HIN_3_108_A	UKNA185	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Severe	Public	Unknown	Does Not Apply	None	Culvert outlet, no structure. Severe erosion in receiving channel
HIN_1_292_A	UKNA187	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Outlet to culvert under road. No structure associated. Some moderate erosion around outlet
HIN_1_291_E	UKNA189	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Outlet no structure. Some erosion on surrounding banks due to soft nature of sediment and no vegetation ground cover. Unable to get ruler in photos due to close proximity to wasp nest
HIN_1_291_J	UKNA191	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Outlet no structure. Some erosion on surrounding banks, otherwise no significant issues
HIN_1_291_J	UKNA192	Inlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Inlet no structure. Some erosion on surrounding banks, otherwise no significant issues
HIN_1_322_A	UKNA203	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Outlet no structure on side of road. Some erosion on surrounding banks
HIN_1_322_B	UKNA204	Inlet point (no structure)	None	Not in GIS	Does Not Apply	Severe	Public	Unknown	Does Not Apply	None	Inlet no structure on side of road. Severe erosion on surrounding banks due to soft nature of soil. Some boulders also present around inlet but are not part of structure
HIN_1_243_D	UKNA206	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Outlet to culvert under road. No water present, no upstream habitat and no structure, only issue is moderate erosion around outlet
HIN_1_348_E	UKNA207	Inlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Inlet on side of road, no structure. Moderate erosion on surrounding banks. No significant issues

Tribcode	Asset_ID	Type	Material	GIS	Maintenance	Erosion	Land Ownership	Asset Ownership	Safety	Fish Barrier	Notes
HIN_3_135_A	UKNA218	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Mixed	Unknown	Does Not Apply	None	Outlet no structure on side of road. Culvert at outlet is submerged. Moderate erosion on surrounding banks
HIN_3_131_A	UKNA219	Inlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Mixed	Unknown	Does Not Apply	None	Inlet no structure on side of road. Culvert at inlet is submerged. Moderate erosion on surrounding banks with some vegetated debris around inlet area.
HIN_2_146_A	UKNA228	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Severe	Public	Unknown	Does Not Apply	None	Culvert outlet no structure. Severe erosion in stream channel within 5m of outlet and underneath culvert. Likely to continue causing sediment inputs to stream and structural failure of culvert
MAK_2_051_J	UKNA244	Outlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Outlet no structure on side of road. Moderate erosion on surrounding banks due to soft nature of soil, steepness and lack of ground cover.
MAK_2_051_K	UKNA245	Inlet point (no structure)	None	Not in GIS	Does Not Apply	Moderate	Public	Unknown	Does Not Apply	None	Inlet no structure on side of road with erosion on surrounding banks. Dense vegetation covers inlet, causing difficulty when taking photos but otherwise no significant issues
HIN_3_007_A	UKNA014	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	Swimmer	Inlet with concrete and rocks as head and wing walls. Velocity and turbulence are barrier to swimmers. Otherwise good condition no significant issues
HIN_3_006_A	UKNA015	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	None	Public	Unknown	Not Safe	Swimmer	Outlet structure in good condition. There is a drop which may cause a barrier for swimmers, as well the rocks in the dissipating structure may block their passage, as well as some small debris built up around boulders
HIN_3_012_A	UKNA017	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	Swimmer	Outlet with concrete and rocks forming its structure. High velocity through fallen rocks means barrier to swimmers. Otherwise good condition, no significant issues.
HIN_3_017_A	UKNA018	Standard Outlet (Headwall and Wingwalls)	Gabion Baskets	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet in good condition. No significant issues. See culvert assessment for culvert condition and fish barrier
HIN_3_012_B	UKNA019	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	None	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet to large culvert under road. Structure made of rock embedded in concrete no serious issues
HIN_6_002_D	UKNA043	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Large structure for inlet under train bridge. No significant issues. Some minor debris jam inside entrance to inlet but does not take up much room so not a fish barrier.
HIN_1_001_A	UKNA044	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet to culvert running under road and train tracks. No significant issues
HIN_1_041_B	UKNA072	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet of pipe from under motorway. Head and wingwalls are straight concrete. Large dissipating structure made of concrete and concrete blocks -2m wide, 10m long. Outlet is high above stream channel. Upstream habitat is out of catchment range
HIN_1_069_A	UKNA088	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet from under motorway culvert. No significant issues

Tribcode	Asset_ID	Type	Material	GIS	Maintenance	Erosion	Land Ownership	Asset Ownership	Safety	Fish Barrier	Notes
HIN_2_053_A	UKNA093	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Private	Unknown	Not Safe - Drop 1.5m	None	Outlet to culvert under road. No significant issues or barriers to fish passage
HIN_5_005_A	UKNA100	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet to culvert under road. Upstream habitat present but no significant issues.
HIN_1_127_A	UKNA101	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	Anguilliform	Complete barrier to fish passage as there is a drop from stream bed down to culvert
HIN_2_053_B	UKNA102	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Culvert inlet for culvert running under motorway. No significant issues or barriers to fish passage
HIN_1_038_B	UKNA106	Standard Inlet (Headwall and Wingwalls)	Timber	Not in GIS	None	Slight	Mixed	Unknown	Not Safe - Drop 1.5m	None	Timber structured inlet under driveway. No significant issues
HIN_1_038_A	UKNA107	Standard Outlet (Headwall and Wingwalls)	Timber	Not in GIS	None	Slight	Mixed	Unknown	Not Safe - Drop 1.5m	None	Timber structured inlet under driveway. No significant issues
HIN_1_038_B	UKNA109	Standard Outlet (Headwall and Wingwalls)	Other	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Culvert under driveway. Slight erosion around outlet but not significant. Structure is made from large boulders embedded in banks
HIN_1_038_C	UKNA110	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Culvert under driveway. Slight erosion around inlet but not significant. Structure is made from large boulders embedded in banks
HIN_3_024_A	UKNA116	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet from culvert under road, no significant issues or barrier to fish passage associated with outlet. Minimal erosion present as lots of grass growing on banks. Structure is concrete with gabion baskets in front of wingwalls
HIN_2_034_A	UKNA123	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet structure made of concrete with extending wingwalls and bridge as headwall. Good condition, no fish barrier, no significant issues.
HIN_1_079_G	UKNA135	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Mixed	Unknown	Not Safe	None	Inlet with concrete headwall and wingwalls. No issues and no fish barrier. Hard to see in photos due to dense vegetation
HIN_1_079_F	UKNA143	Standard Outlet (Headwall and Wingwalls)	Other	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet to culvert running under road and joining stream through reserve. No structure or significant issues associated. Outlet structure is made of large boulders placed around culvert acting as head/wing walls
HIN_3_025_C	UKNA146	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet to 3 culverts that run under road, no significant issues or fish barriers. The structure is a headwall made of concrete

Tribcode	Asset_ID	Type	Material	GIS	Maintenance	Erosion	Land Ownership	Asset Ownership	Safety	Fish Barrier	Notes
HIN_2_041_A	UKNA160	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet made of cement and rocks. No barrier to fish passage, no issues.
MAK_3_084_A	UKNA170	Standard Outlet (Headwall and Wingwalls)	Gabion Baskets	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet to culvert under road. Structure is a headwall, which is gabion baskets. There is also a timber structure, but this doesn't appear to be doing anything. No significant issues or barriers to fish passage. Unable to get upstream photos
HIN_1_186_D	UKNA172	Standard Outlet (Headwall and Wingwalls)	Other	Not in GIS	None	Slight	Mixed	Unknown	Not Safe - Drop 1.5m	Climber	Outlet to culvert. Headwall and wingwalls made from large boulders embedded in bank. Drop of 1.5m over rocks at outlet, barrier to swimmers and climbers
HIN_4_018_A	UKNA179	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	Swimmer	Outlet to culvert under road. Structure is wingwalls made of concrete. No significant issues associated. Just downstream of outlet is a waterfall, although haven't assessed as apart of outlet. High velocity in outlet is barrier to swimmers
HIN_2_155_C	UKNA182	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	None	Public	Unknown	Not Safe	None	Functional head wall with wing walls. No significant issues
HIN_4_019_A	UKNA183	Standard Inlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet to culvert under road. Structure is concrete wing wall. No significant issues or barrier to fish passage
HIN_3_108_B	UKNA186	Standard Inlet (Headwall and Wingwalls)	Masonry Block	Not in GIS	None	None	Public	Unknown	Not Safe - Drop 1.5m	None	Functional culvert inlet structure. Unsafe drop
HIN_3_090_C	UKNA197	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Inlet to culvert under road. Structure is rock embedded in bank acting as head wall no significant issues associated
HIN_3_100_A	UKNA198	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet to culvert under road. Structure is head wall and wing walls made of concrete. No significant issues associated or fish barriers. Hanging vegetation over outlet
HIN_3_128_A	UKNA211	Standard Outlet (Headwall and Wingwalls)	Concrete	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Outlet to culvert under road. Concrete blocks embedded in bank. No significant issues or barriers to fish passage
HIN_3_128_B	UKNA220	Standard Inlet (Headwall and Wingwalls)	Other	Not in GIS	None	Slight	Public	Unknown	Not Safe - Drop 1.5m	None	Culvert under road. Structure is wingwalls made from rock embedded in bank, average condition as rocks look as though they could fall into stream. There is debris build up at inlet also which should be removed. No significant issues or fish barriers

Tribcode	Asset_ID	Type	Material	GIS	Maintenance	Land Ownership	Asset Ownership	Fish Barrier	Notes
HIN_6_001_F	SWM6323	Pipe	Concrete	Correct in GIS	Vegetation Clearance	Council	Council	None	Storm water pipe in good condition surrounded by weed infestation.
HIN_6_001_C	SWM6253	Pipe	Concrete	Correct in GIS	Erosion Protection	Council	Council	None	Culvert has no issues. However, outlet has significant erosion, which has been described in culvert assessment.
HIN_6_002_B	UKNP002	Pipe	Concrete	Not in GIS	Vegetation Clearance	Council	Council	None	Pipe in good condition. Weed removal possibly needed.
HIN_1_042_B	UKNP017	Culvert	Concrete	Not in GIS	Debris Removal	Council	Unknown	Swimmer	Culvert is flooded with high water levels in both inlet and outlet. Unable to determine some of the data due to culvert being entirely submerged. Could be overflowing due to blockage in culvert. Attention needed to fix problem.
HIN_6_002_B	UKNP003	Pipe	Concrete	Not in GIS	Erosion Protection	Council	Unknown	None	Erosion control needed as soil below pipe end eroded away. Vegetation clearance also needed as hidden beneath grass.
HIN_6_002_C	UKNP004	Culvert	Concrete	Not in GIS	Vegetation Clearance	Council	Unknown	Swimmer	Large rectangular culvert under railway. Slight perching at outlet end causing drop. High turbulence and velocity. Likely to have some impact on fish passage. Some vegetation in culvert that could be cleared.
HIN_1_001_B	UKNP007	Culvert	Concrete	Not in GIS	Debris Removal	Council	Unknown	Climber	Culvert in good condition. Upstream and downstream have high water depth. High velocity through culvert and low flow impedance cause barrier to both swimmers and climbers. Debris at inlet could be removed to aid flow.
HIN_1_001_C	UKNP008	Culvert	Concrete	Not in GIS	Structural	Council	Unknown	None	Pipe at outlet cracked, may require structural maintenance. Otherwise functioning.
HIN_1_001_A	UKNP010	Pipe	Concrete	Not in GIS	Structural	Council	Unknown	None	Pipe at outlet 2-3m above stream bed. Structural damage as chips of concrete are missing exposing wire underneath.
HIN_2_003_B	UKNP012	Culvert	Concrete	Not in GIS	Structural	Council	Unknown	None	Culvert in stream bed, some structural maintenance required due to concrete chipping. Some debris jam at front of culvert at inlet. Unable to see culvert at outlet because of vegetation.
HIN_3_017_B	UKNP014	Culvert	Concrete	Not in GIS	Structural	Council	Unknown	Climber	Culvert under road. Drop at culvert outlet is barrier to swimmers. Condition is average and could use structural maintenance.
HIN_1_055_A	UKNP019	Culvert	Concrete	Not in GIS	Vegetation Clearance	Council	Unknown	None	Culvert in stream bed. Water is still and not flowing. Water level very high due to blockage in culvert. Likely from overgrown vegetation, needs vegetation clearance.
HIN_1_055_B	UKNP022	Culvert	Concrete	Not in GIS	Structural	Council	Unknown	None	Culvert on side of road running under driveway connecting to intermittent stream. Could use structural maintenance as concrete is chipping away.
HIN_3_090_B	UKNP123	Culvert	Concrete	Not in GIS	Vegetation Clearance	Public	Unknown	Anguilliform	Culvert under road. Culvert is full of vegetation and no water flowing. Potential flood risk
HIN_1_348_E	UKNP127	Culvert	Concrete	Not in GIS	Structural	Public	Unknown	None	Culvert under road. Poor condition as there is a lot of chipping away at culvert outlet, needs to be repaired or replaced. No barriers to fish passage

HIN_1_035_A	UKNP062	Culvert	Concrete	Not in GIS	Vegetation Clearance	Public	Unknown	None	Culvert under road no significant issues. Could do with a bit of vegetation clearance at outlet as culvert is covered can't be seen in photos
HIN_1_064_E	UKNP076	Culvert	Concrete	Not in GIS	Structural	Public	Unknown	None	Culvert under road. Unable to access culvert at its outlet due to dense vegetation. Culvert at inlet could use some structural maintenance, otherwise presents no fish barrier and no other significant issues.
HIN_2_038_A	UKNP091	Culvert	Concrete	Not in GIS	Structural	Public	Unknown	None	Culvert under road. Labelled on side of road as "ramarama culvert". Sitting in stream channel next to identical culvert. Average condition due to concrete chipping away at culvert. No barrier to fish passage
HIN_2_038_A	UKNP092	Culvert	Concrete	Not in GIS	Structural	Public	Unknown	None	Culvert under road. Labelled on side of road as "ramarama culvert". Sitting in stream channel next to identical culvert. Average condition due to concrete chipping away at culvert. No barrier to fish passage
HIN_2_039_B	UKNP094	Culvert	Concrete	Not in GIS	Vegetation Clearance	Public	Unknown	None	Submerged culvert in intermittent stream on side of road underneath power line. Not a barrier to fish passage as water is still flowing through. Measurements are estimates as we cannot access the culvert due to its submergence.
HIN_1_218_B	UKNP105	Culvert	Concrete	Not in GIS	Vegetation Clearance	Public	Unknown	Swimmer	Culvert under road. Drop of 0.2m creating a complete barrier to swimmers at outlet.
HIN_1_218_H	UKNP109	Culvert	Concrete	Not in GIS	Erosion Protection	Public	Unknown	None	Culvert under road. No upstream habitat or significant issues associated. No water present in culvert. Some chipping at inlet but still functioning. Unable to access outlet
HIN_1_291_J	UKNP120	Culvert	Concrete	Not in GIS	Structural	Public	Unknown	None	Culvert under road. No upstream habitat as stream is fed from roadside drain. Some iron floc present. Some concrete is chipping away at edges of culvert.
HIN_1_322_A	UKNP126	Culvert	Concrete	Not in GIS	Structural	Public	Unknown	None	Concrete culvert under road with some chips of concrete missing at outlet. No water flowing through culvert as streams either side are ephemeral. Sediment and leaf litter line the base of culvert at outlet. Culvert inlet is hidden beneath boulders
HIN_2_030_B	UKNP020	Culvert	Concrete	Not in GIS	Erosion Protection	Mixed	Unknown	None	Unable to access culvert so have estimated parameters. Fine sediment build up at both ends otherwise appears to be functioning fine.
HIN_1_054_A	UKNP023	Culvert	Concrete	Not in GIS	Vegetation Clearance	Mixed	Unknown	None	Culvert almost completely submerged by water due to blockage by vegetation. Unable to see culvert at outlet due to dense vegetation.
HIN_1_064_C	UKNP075	Culvert	Concrete	Not in GIS	Structural	Mixed	Unknown	None	Culvert under road. Some structural damage but otherwise no barrier to fish and no issues
HIN_3_007_A	UKNP013	Culvert	Concrete	Not in GIS	None	Mixed	Unknown	Swimmer	Culvert running under road bridge. High velocity and turbulence as well as 0.5m drop at outlet means barrier to swimmers. Culvert itself in good condition.
HIN_1_042_H	UKNP018	Culvert	Concrete	Not in GIS	None	Council	Unknown	Climber	Drop from culvert into outlet channel is barrier to swimmers as 0.2m. Also low flow impedance could occur at times creating barrier to swimmers and climbers.

HIN_2_025_A	UKNP025	Culvert	Concrete	Not in GIS	None	Public	Unknown	Climber	Barrier to fish due to drop height and also high velocity and turbulence. Would always be a barrier to swimmers, and some climbers if water levels were high in culvert.
MAK_2_051_C	UKNP066	Culvert	Concrete	Not in GIS	None	Public	Unknown	Climber	There is only a small amount of water in culvert which could create a temporary barrier to swimmers and climbers. Also a very small drop from culvert to channel but shouldn't be a barrier
HIN_3_024_A	UKNP074	Culvert	Concrete	Not in GIS	None	Public	Unknown	Swimmer	Culvert is inner part of bridge. High velocity and turbulence at culvert outlet. Drop of 0.5m to base of stream channel at culvert outlet is barrier to swimmers. Otherwise good condition, no significant issues. Named Gannons culvert on road sign.
HIN_1_079_G	UKNP080	Culvert	Concrete	Not in GIS	None	Public	Unknown	Climber	Culvert under road with perched drop of 0.2m, creating a barrier to fish passage. Otherwise good condition with no significant issues
HIN_1_072_A	UKNP086	Culvert	Concrete	Not in GIS	None	Public	Unknown	Swimmer	Culvert underground alongside of road. Partial barrier at outlet as there is a small drop to stream which would block swimmers passage. No other significant issues
HIN_2_041_A	UKNP095	Culvert	Concrete	Not in GIS	None	Public	Unknown	Anguilliform	Culvert running parallel to road. Culvert is perched at outlet with a 0.2m drop to dissipating structure made of rocks and into channel below. Drop is barrier to fish passage. Otherwise good condition, no significant issues.
MAK_4_063_C	UKNP099	Culvert	Corrugated Iron	Not in GIS	None	Private	Unknown	Swimmer	Large culvert under road. No maintenance required. Drop at culvert outlet is barrier to fish passage
HIN_1_186_D	UKNP104	Culvert	Concrete	Not in GIS	None	Mixed	Unknown	Anguilliform	Culvert under road. It is perched creating a complete barrier to all fish, there is also a possibility of low flow impedence, which would be a temporary barrier. Drop from culvert outlet to channel is 0.5m
HIN_1_280_A	UKNP111	Culvert	Concrete	Not in GIS	None	Public	Unknown	Swimmer	Culvert under road. Temporary barrier to swimmers as there is high velocity in the culvert. No other significant issues associated
HIN_3_108_A	UKNP117	Culvert	Concrete Lined Steel	Not in GIS	None	Public	Unknown	Climber	Functional culvert. Significant erosion around outfall and in stream channel. Perched and overhanging ~45cm causing fish passage issue. Diameter estimated as no access
HIN_1_292_A	UKNP118	Culvert	Concrete	Not in GIS	None	Public	Unknown	Swimmer	Culvert under road. Outlet has a drop of 0.2m to stream creating a complete barrier to swimmers.
HIN_1_291_E	UKNP119	Culvert	Concrete	Not in GIS	None	Public	Unknown	Climber	Culvert under road. Outlet of culvert is perched with a drop of 0.5m creating a complete barrier to some fish. Unable to get ruler in photos due to wasps swarming around area
HIN_3_090_B	UKNP122	Culvert	Concrete	Not in GIS	None	Public	Unknown	Swimmer	Culvert under road. Outlet has a drop of 0.10m creating a complete barrier to swimmers. No other significant issues
HIN_2_146_A	UKNP137	Culvert	Concrete	Not in GIS	None	Mixed	Unknown	Climber	Functional culvert. Erosion at inlet and outlet causing some water to flow under culvert. Overhanging and perched ~45cm causing fish passage issues
MAK_2_051_J	UKNP146	Culvert	Concrete	Not in GIS	None	Public	Unknown	Climber	Culvert under road. At outlet culvert is perched with a drop of 0.3m so complete barrier to swimmers and climbers. Culvert inlet was hidden under grass vegetation

Appendix D Stream Naming Convention

Appendix E Required Fields for Abridged and Limited Asset Assessments

Inlets/Outlets

Field	Abridged Assessment
Stream Name	✓
Tributary ID	✓
Surveyed Date	✓
Consultant	✓
Assessor	✓
Asset ID	✓
Status	✓
Asset Type	✓
Erosion	✓
Barrier Impact	✓
Barrier to Swimmers	✓
Barrier to Climbers	✓
Barrier to Anguilliforms	✓
Notes*	✓

*Condition rating was not a required field, so asset condition was recorded in the note sections. Condition was only recorded for assets in poor or very poor conditions.

Pipes/Culverts

Field	Limited Assessment	Abridged Assessment
Stream Name	✓	✓
Tributary ID	✓	✓
Surveyed Date	✓	✓
Consultant	✓	✓
Assessor	✓	✓
Asset ID	✓	✓
Status	✓	✓
Asset Type	✓	✓
Diameter	✓	✓
Width (for non-circular pipes)	✓	
Height (for non-circular pipes)	✓	
Barrier Impact		✓
Barrier to Swimmers		✓
Barrier to Climbers		✓
Barrier to Anguilliforms		✓
Notes*	✓	✓

*Condition rating was not a required field, so asset condition was recorded in the note sections. Condition was only recorded for assets in poor or very poor conditions.